ENGLISH EDITION

016

HISPA BRICK
magazine
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magazine

016

HISPABRICK magazine

016

Frontcover by Arjan Oude Kotte aka Konajra
Backcover by Schneider Cheung

In this issue of HispaBrick Magazine®

6

10

79

16

Editorial

By lluisgib

We are celebrating! HispaBrick Magazine 016 commemorates the 5th anniversary of this magazine, which was conceived one March 28, 2008, and was born on May 28, 2008, with the first issue of the magazine.

If 5 years ago we had been told we would still be here, we would probably not have believed it. However, this issue of HispaBrick Magazine® is not dedicated to self-promotion. You will not find a single article on the anniversary as we believe that if we were to tell you about what goes on behind the scene you would be bored stiff.

Anyway, in this editorial we would like to thank each and every person who has helped us in these 5 years to get where we are. From the editors and collaborators and translators (essential to being able to publish the magazine in two languages) to the more than 10,000 readers in over 80 countries who are the reason why we exist, without forgetting the LEGO® company which has always, whenever possible opened its doors for us to peek inside the factory of our dreams.

Regarding this issue, we offer you an interesting mix of items about a large variety of subjects, as usual. We hope you enjoy reading this issue of HispaBrick Magazine as much as we have enjoyed making it. And, as always, we offer you our email address: info@hispabrickmagazine.com for opinions, suggestions or proposals you wish to make. Without your help this magazine wouldn't exist.
#

Dear HispaBrick magazine,

On the occasion of the magazine's five year anniversary I wanted to drop you a quick note of appreciation. I read every issue of the magazine. I cannot say that I read every article, but I browse through them all, and it is with great interest and satisfaction. For me it is a special feeling to get inspired by the things you discuss and write about. It continues to amaze me what LEGO® fans are doing and working on.
I wish the magazine great continued success in the future.
Very best regards
Jørgen vig.

Jørgen Vig Knudstorp
Chief Executive Officer
LEGO® Group
#

The Ship Builder

By Arjan Oude Kotte aka Konajra

As far as I can remember I have always liked ships. I can remember building more ships with my LEGO® bricks than cars and trucks. Don't ask me why, I don't live near a harbour, nor is any family member a sailor. As a kid (I think I was around 13/14 years old) I built a model kit of the Smit Zwarte Zee from Billing Boats. The version with the wooden hull. Nowadays that kit comes with an ABS hull (funny enough that's the same material LEGO bricks are made from). I would rather have build the Smit Rotterdam - the iconic ocean going tug from the '80 - which is even harder to build for a 14 year old. With a lot of help I managed to finish the Zwarte Zee. It sailed in a pool near my house but it was not completely waterproof. The finishing on the model was far from perfect too. By building the Zwarte Zee I found out I'm not the modelbuilder that can make great things from wood or plastic. A lot of the parts were skewed and there were many visible seams, but I was one happy kid. And so the years went by. I got rid of the Zwarte Zee decades ago and discovered LEGO about 5 years ago. I bought technic sets and build them so my sons could play with them. After a while I started to build my own creations, I started with minifig scale mining machines, but when I came across a minifig scale MOC of the Smit Rotterdam on the web, I knew I wanted to build a ship in LEGO too. And from one ship came another and another and...

Whenever I start a new creation I always start by surfing the internet. Because I don't live near a big harbour, the internet is the place for me to search for a ship to turn into a LEGO model.

Over time my ships are getting bigger and bigger. The first one I built was an 80 cm long beam trawler and I'm currently designing a emergency response and rescue vessel (ERRV) that will become 125 cm long and 35 wide.

The ships I choose to build in LEGO depend on the fact if the line plans and general arrangement plans are available on the internet.

Unfortunately those plans are kept confidential for most ships by either the shipyards or the ship owners. Most of the times I send an email with a request for the plans but I hardly get any response to those emails. However there are a lot of plans available, mostly from older ships, through model building websites, but it is a sport for me to get my hands on plans without having to pay for them.

For every ship that I have build so far the plans were available for download on the internet or were given to me by the ship owner.

The ship shown in this article is a non existing ship, at least in the yellow/black livery I build it in. the ship itself exists in the colors of Fairplay Towage Hamburg, Germany. This model is a copy of my model of the FAIRPLAY-33 . That one was a commission built for Fairplay Towage. Due to the fact that the model turned out so great I decided to build a version for myself. I was asked by Fairplay to build my model in a different color, so that they would have the only FAIRPLAY-33 in LEGO. I searched the internet and ended up with the livery from Viking Supply Vessels AS, based in Copenhagen, Danmark.

I always design my ships in Ldraw first. Not because it is easy, but simply because my collection of bricks is not big enough to just start building or I just don't have the right parts in the amounts I need. At this point designing a ship with Ldraw is becoming easier and easier. With every ship I have designed in Ldraw I have learned new tricks, but I'm still not an expert with Ldraw.

As mentioned earlier I was asked by Fairplay towage to build one of their tugs in LEGO. Until then the biggest ship I had

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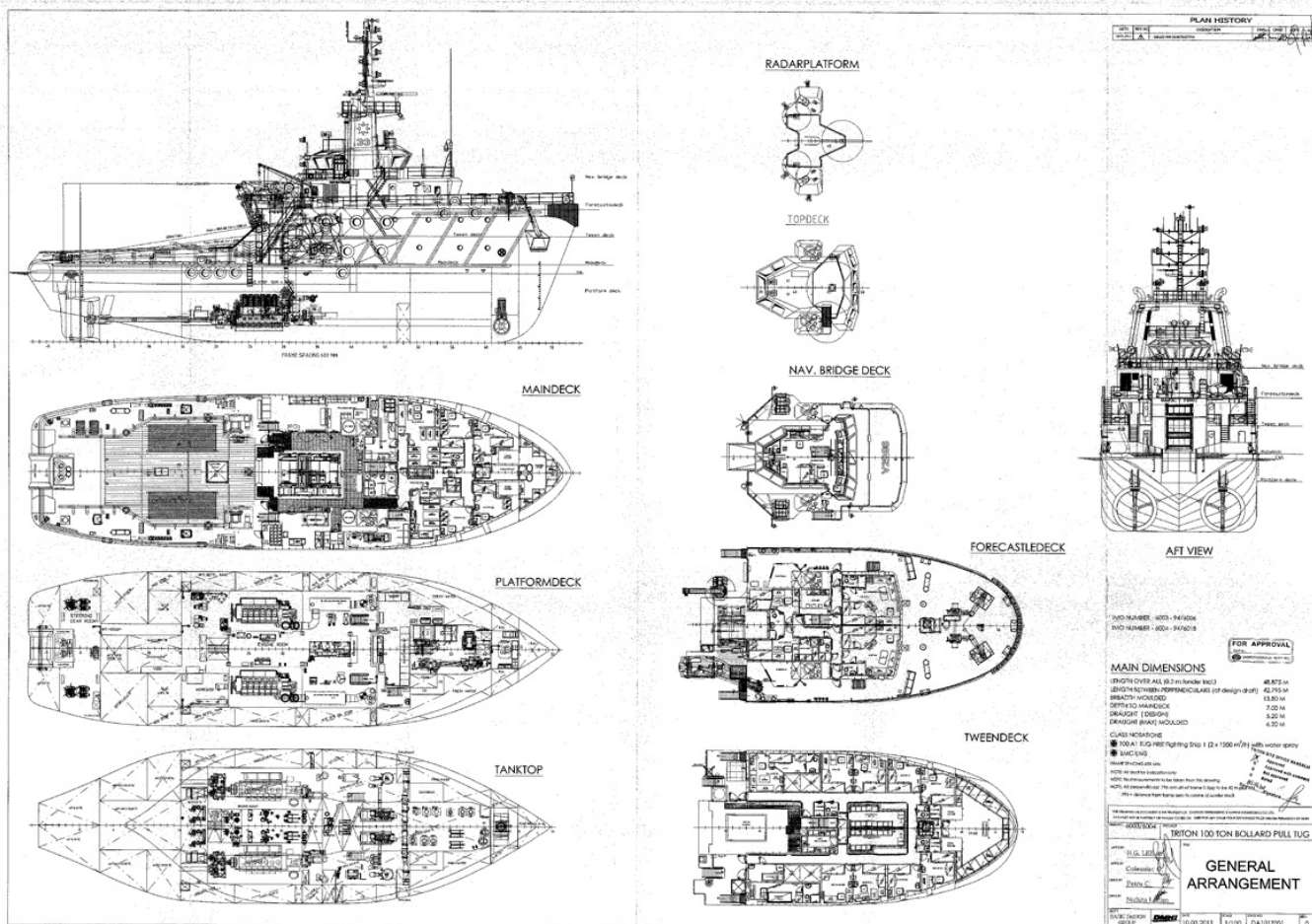
build was about 100 cm long and 22 cm wide. I started looking at their fleet list and found out they have a fleet of tugs starting around 25 meters and up to 49 meters. I was hoping I would have to build an average sized tug (around 30m), but of course it turned out they wanted their new flagship built in LEGO®: the FAIRPLAY-33

Because this was a commissioned build I did not have to search for the plans on the internet. Only the general arrangement plans were send to me. The best, and easiest, way for me to build a hull that represents the hull of the ship is by using the line plans. Luckily with a good general arrangement plan it is also possible to build a hull that looks like the real one. For this the general arrangement plans must show all the decks of the ship. From the lowest (TANK deck) to the bridge deck.

I always enlarge the plans in photoshop to a 1:40 scale. I know it is not exactly minifig scale, but at this scale most of the doors of the superstructure measure 2 studs wide; still too small for a minifig to pass straight through, but if I make them any wider the overall look will be off. The doors will look out of place on the completed ship. The enlarged plans are printed on A0 paper by the local copy shop. Now I can copy the shape of the keel and each deck just by simply laying plates or bricks on the printed plans.
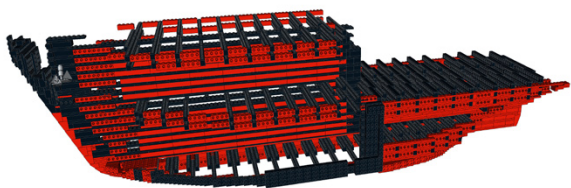
The best place for me to start a new design is the bow. I copy the shape of the keel from the bow to the stern with real bricks and copy the shape of the bricks in Ldraw. For my smaller ships I keep the keel one stud wide. for this ship I decided to make it two studs wide, just for the strenght of it. Of course a lot of times I have to use slopes upside down. At first I used the old 1x2 hinge plates to achieve that, but since I found a snot construction with cheese slopes, I no longer have to use those plate hinges. It is not as strong as the hinge construction, but it works well.

After copying the keel I start on the shape of all the decks. I always copy either the left or right side shape of a deck (Later when one side of the hull is finished I copy the completed side and mirror it. That way I know for sure that both sides of the hull are the same.) When placed at the correct height on the keel, the shape of the hull appears in Ldraw.

Depending on the size of the ship I divide the keel and decks in at least two sections. That makes building and transporting it a lot easier.

The inside of this ship consists of a frame, constructed with a lot of Technic bricks 1 x 16. On the outside of the frame bricks 1 x 4 with studs on side are placed. Those bricks are obviously for connecting the plates and tiles of the hull.

Next is the bottom of the hull. That is the only important part of the hull that is not shown on the general arrangement plan. so the shape is a complete wild guess. I used 2x8 bricks for strength, and created the shape I thought fitted perfectly with the tank deck shape. The bottom shape together with the

shapes of the decks is enough for me to build the hull that represents the ships hull. Now it's just a matter of filling up the gaps between each deck with slopes and tiles to get the desired shape. That means a lot of trial and error. By using all possible slopes in any direction, you eventually will end up with a hull that represents the ships hull in the best possible way.
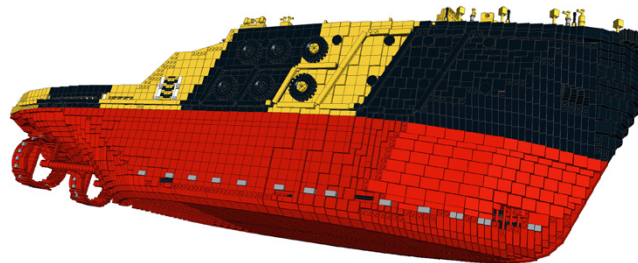
Some builders say that most of my hulls are too pixelated, but for me it is good enough. Besides that I don't even like designing the hull. It's just that it is the biggest and most important part of a ship but I do not enjoy doing it a lot. I prefer spending my time on all the little details on deck or the superstructure, but without a hull there is simply no ship. I must say though, that I think my hulls are getting better which each ship I build.

The bridge of this ship was a challenging one. I had never build a bridge with so many angles and tilted windows like this one has. For designing the bridge I reversed my method. For once I started out with real bricks. Just to see what angles were possible and to find out how I could close the gaps between the windows. It turned out that this way it was also very easy to find the points where the windows could be connected to the studs of the deck below, so that the whole structure would become strong enough to hold the roof of the bridge. Once I was happy with the result I copied the whole bridge in Ldraw. All that is left now is to just put in as much detail of the real ship as possible without making it too detailed so it doesn't get in the way but looks like the real thing.
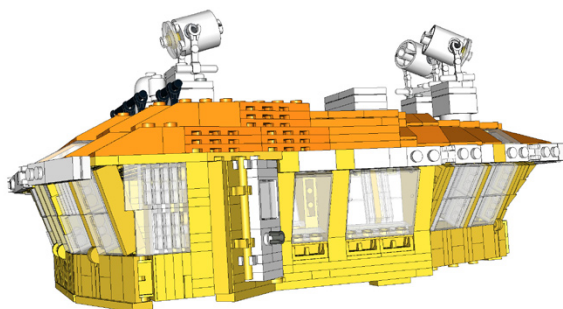
The Tyr Viking consist out of apr. 18.000-20.000 bricks and is 125 cm long. It is 35 cm wide and from the bottom of the keel to the top of the mast it is about 70 cm.

Designing this model took around 165 hours. Building the model took another 85 hours.

I started out building mining machines, but since I built my first ship I am hooked on ships. The variety in the naval world is just so big, that I can continue to build them without getting bored. However I will never build a cruiseship, luxury yacht or battleship. The reason for that is that I think that large cruise ships are a lot of repeating work, yachts are simply too sleek and I don't like the grey color of battle ships.

The ships I like are the ones that are used to transport heavy things, that get abused, rusted and dirty. In short: work vessels like fishing boats, tugs and all sorts of offshore vessels.
I hope someday I'll have collected enough bricks to build the Smit Zwarte Zee, a 200 cm long model. I have already designed the wheelhouse in Ldraw...
#

The Year of the Snake

By Schneider Cheung

Hello, I'm Schneider Cheung from Hong Kong. SCHFIO or Schfio_factory is my name, too.

I love building everything with LEGO®.
Amongst those types of creations, I love sculptural building the most. I build sculptures with LEGO studs facing outwards. It is the SNOT technique. The basis of my technique comes from the Lowell Sphere.
At the very beginning, I tried to manipulate this sphere, either elongate or shorten it when sculpting, like making a pottery creation.
So I needed to formulate spheres of different sizes.

However, it's a different picture now.
In this article, I will try to make a general introduction / description of how I make a LEGO sculpture with SNOT technique.
I've made a life-sized sculpture of a snake with LEGO pieces.
I´ve made it because this year, 2013, is the Lunar Year of Snake.
First, I needed to collect some information about snakes. I bought books, searched for photos, even video from internet. I also visited a zoo to see how a real snake move as well.

Next, I made a sketch of the snake I prepared to create.
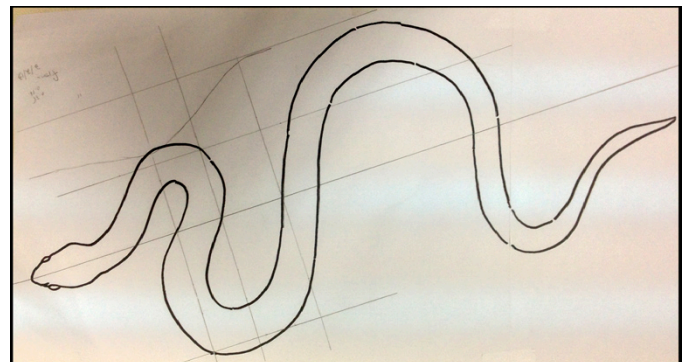
This sketch should be approximately the size of my creation. Whenever, I need to do some big sculpture, I use a photocopier to magnify my sketch. It's because I'm not good at drawing big things.

On my sketch, I drew some axis so as to make an accurate curvature with these axis.

I tried to imagine the final appearance of the snake in 3D at this moment .

As you know, a natural real snake rarely curl its body in 2D dimension/direction. The curvature of its body is somehow similar to the spiral structure of a DNA. Therefore I needed to estimate the latitude at which the head will raise, and prepared to make some 3D curvature at the head and neck of the snake. Once the sketch, draft and calculation were completed, I started to build it with LEGO® bricks. I used almost 85% of LEGO plates.

I roughly build the skeleton at the start.
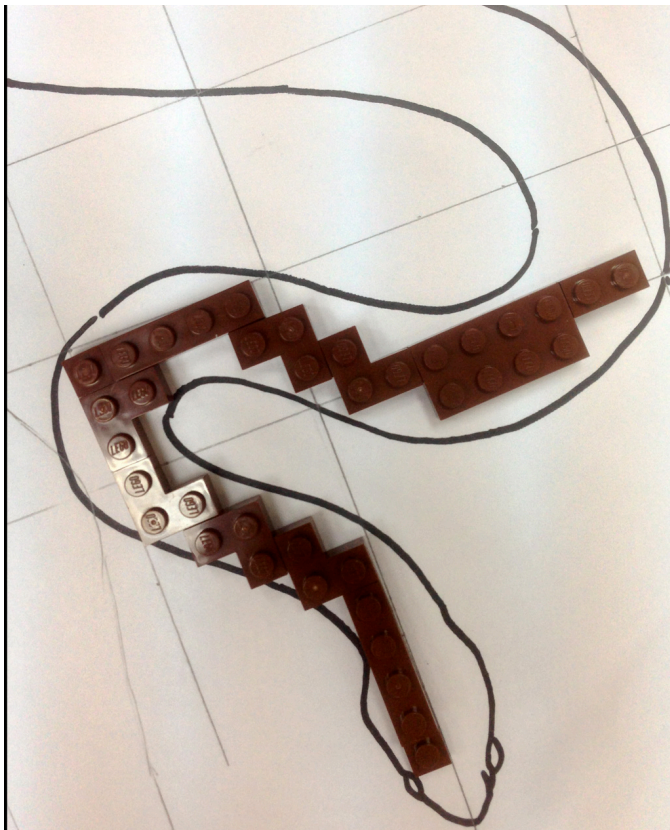
After that, the stud-out process begins. Whenever the creation is not urgent to be used, I build a prototype with a single color tone.
Afterwards color or pattern will be added. Otherwise, it will make my brain overloaded in dealing with the shape and pattern simultaneously.
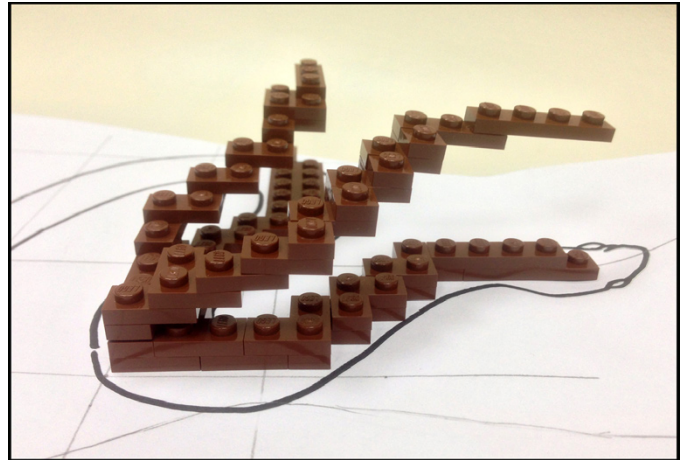
Oh, the shape of my snake is already prepared!

The most difficult step starts now! It's the making of patterns.

11
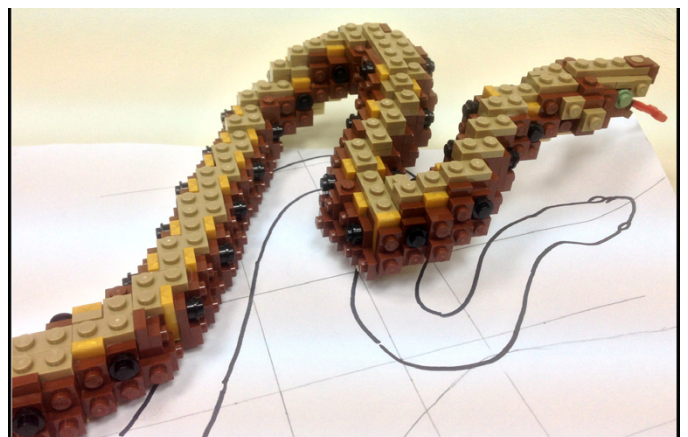
I needed two snakes of different species this time.
Finally, they came out!

Since the creation is specially made for the greeting of the Lunar/ Chinese New Year, I needed to prepare another item which uniquely appears in the Chinese New Year.
I chose the golden Chinese New Year Ingots (a special form of Nugget).

The Golden Chinese New Year Ingot represents wealth. The same process starts again!

Finally, I prepare the photography of my creation. I look for an environment suitable for the photography I have in mind. The environment will be the background of the photo. A good environment adds a special chemistry to the creation.
This is the final appearance of my MOC!

I hope all of you have a Prosperous Snake Year!
Enjoy!

THE YEAR OF SNAKE

schfio factory 2013

Schfio factory 2012

Have you ever seen my previous creations? Here are some of them!

The Year of Dragon !

Schfio factory 2012

Interview: Yoshihito Isogawa

Technic Master

By HispaBrick Magazine®

Pictures by Yoshihito Isogawa

In the international AFOL community there are names that transcend the borders of LUGs countries and cultures. The master Yoshihito Isogawa is one of those names. He is the author of a series of books that are indispensable to Technic fans and in this article we will learn more about his educational work with children.

HBM: How did you get started with LEGO®?

YI: When I was about 4 or 5 years old, my parents bought me a LEGO set from a department store. A couple years later, having saved my allowance, I bought an early version of the LEGO Technic series. I have been enjoying it ever since.

HBM: What LEGO sets have marked you?

YI: I love the LEGO Technic series and the LEGO MINDSTORMS series, but my favorite right now is the 9686 Simple & Powered Machines Set. It offers a good balance of parts and is recommended by many. However, being an educational tool, it can be difficult to obtain.

HBM: Has LEGO influenced the rest of your professional life?

YI: Ever since my youth, I have loved the LEGO Technic series. I studied mechanical engineering at a university and choose work in technical writing, design, and book making.

The LEGO® bricks that I loved as a child and the bookmaking skills that I've acquired through work are applied in my books. By the way, I did everything myself—model making, photography, page layouts, cover design, and pictograms—for the LEGO Technic Idea Book series and the pdf book, LEGO Technic Tora no Maki.

HBM: What project has been most demanding on you and why?

YI: The LEGO Education show is running at science museums throughout Japan. I've constructed five MINDSTORMS robots for this exhibit. The robots are in continuous operation seven hours a day for 40 consecutive days and roughly 100 days a year. I struggled to design entertainment models that were easy on the motor yet durably constructed.

HBM: What mechanism do you think LEGO should develop or improve in the Technic theme?

YI: Models that could be improved on are those for use in water or wet conditions, such as rotary pumps and submersible motors, and those that make use of wind power. The fans in the "9688 Renewable Energy Add-on" set are a bit large, so I'd like to see more streamlined, energy-efficient fans for generating wind.
It would also be nice to have bricks that function like a dry-erase board—easily marked with a pen and wiped clean.
I would also like to see thinner and more pliable MINDSTORMS connector cables.:)

HBM: What factors do you keep in mind when building a new model?

YI: When I develop models I consider the following, in order of importance:
1: Develop a model that I find interesting and fun.
2: Develop a model that can be enjoyed by all who see it.
3: Develop a model simple in design, so its mechanism can be understood by simply looking at the model.
4: Use a total number of parts that makes it possible for those who see it to make it themselves.
5: Make it durable enough so it doesn't break when handled by children.
6: Make it look aesthetic.

HBM: What do you think are the main limitations when building with LEGO Technic?

YI: The durability of the bricks. That said, however, I would rather the LEGO bricks not be made of metal.
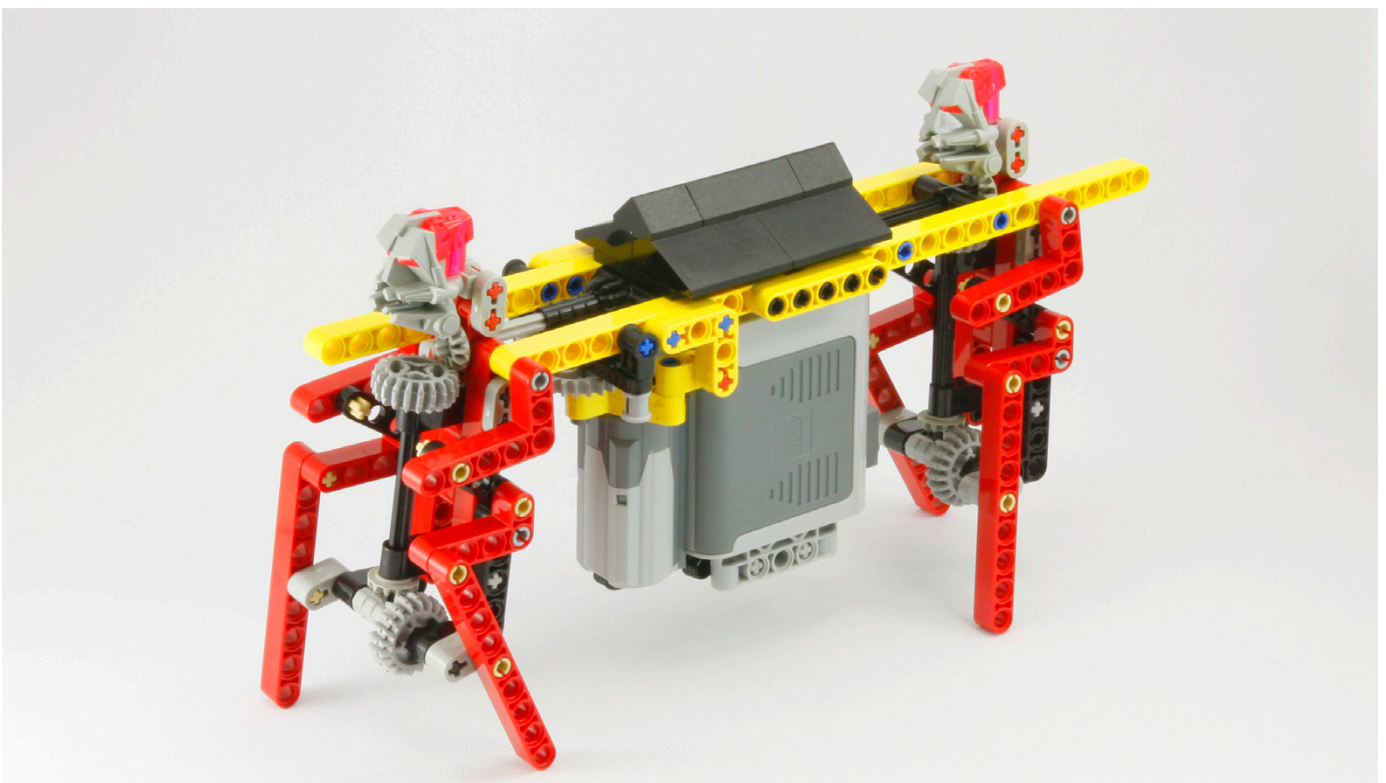
HBM: In addition to Technic is there any other theme you like to build?

YI: A combination of Origami and LEGO® Technic, I believe, will open up further opportunities.

HBM: How widespread is LEGO Technic and MINDSTORMS® in Japan?

YI: To be honest, the LEGO Technic and MINDSTORMS systems are known only to the most informed educators and parents. You seldom see MINDSTORMS at a toy store, and it's even rarer to find LEGO Technic. Also, the number of schools that have adopted LEGO as an educational tool is still quite low, especially, compared to schools in Europe and North America. For this reason, I am working to promote the value of LEGO Technic and MINDSTORMS to the masses. I am not even an employee of the LEGO Group.:)

HBM: On your website one can see that you are very involved in showing LEGO to small children.
Which do you think are the main benefits that LEGO can provide these children?
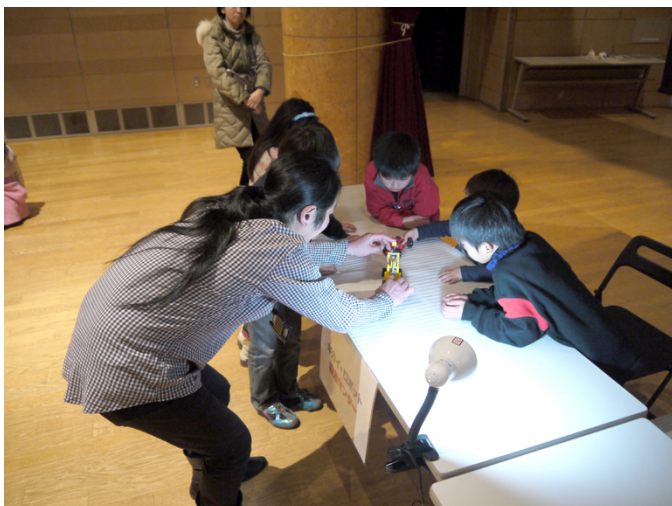
YI: Nowadays, children have many opportunities to experience virtual situations through video games and the Internet, with fewer opportunities for real experiences. Also, when you disassemble a broken clock, radio, or electronic gadget, all you find are tiny IC chips, which are not interesting to children. I believe LEGO bricks and LEGO Technic are great for showing children the joys of real-world mechanics. Experiences such as listening to the whining of gears or feeling the occasional pain of getting one's finger caught up in gears are essential for children.

HBM: What is the best way to get these children interested in LEGO?

YI: Get children to touch remarkable LEGO creations. If an object has "Do not touch!" posted on it or is enclosed in an acrylic case, the children will not get the complete experience. If the object breaks, it can still be reassembled, which is why I prefer to be on-site at exhibitions.

Allow children's imaginations to run free. The "settle on a goal and work towards it" technique is no good. I don't want to take away the freedom to change one's mind during the creative process. As a child, with some building blocks, I once began creating a model of a dog, which gradually began to take the shape of a giraffe, and gradually, it started to take the form of the Tokyo Tower. However, the finished product was a model of the Eiffel Tower. I hope children repeatedly go through similar experiences. I believe this will bring about flexibility in their thinking.

HBM: Japan is a country where state of the art technology and robotics are very important. Does this have a positive impact on the interest in LEGO MINDSTORMS among young ones?

YI: As I previously mentioned, the LEGO Technic and MINDSTORMS systems are not well known in Japan. Only a small percentage of people—those who are able to see the value in things—are offering MINDSTORMS to children. On the other hand, a large number of children who were brought up playing LEGO® Technic and MINDSTORMS

18

are now on the path to becoming cutting-edge developers and engineers. For example, 14 years ago when RCX was launched I published a book on LEGO Technic, LEGO no Shikumi de Asobu Hon, in Japan. (http://www.isogawastudio.co.jp/legostudio/bookintroduction.html#asobuhon). A young boy who built all the examples in that book is now working on rescue robot development at a graduate school.

HBM: Your books are a reference in the Technic world. When and why did you decide to show your knowledge in books?

YI: "I show you a little mechanism. You complete the rest", is the concept in LEGO no Shikumi de Asobu Hon, issued 14 years ago, and still in the LEGO Technic Idea Book series and LEGO Technic Tora no Maki, although the way of building has changed from the beam to the lift-arm.
Fourteen years ago, I was asked by a publishing company to create a reference book for MINDSTORMS. At the time, I had been looking at many works by my colleagues from a MINDSTORMS users group I had joined. I felt that the software production technology was good, whereas the hardware production technology was relatively poor. So I told the publisher, "I think the information needed now by MINDSTORMS fans of the world, is the building technique based on LEGO Technic. "With that, I pulled together a compilation of "little mechanisms" that could be applied by any user of LEGO Technic and MINDSTORMS®.

HBM: Do you have plans for more books?

YI: At present I am developing an educational curriculum called "Burokku-Karakuri-Kenkyujo (Institute of Brick-Karakuri*)" (http://www.facebook.com/karakuriken) for teaching mechanics based on LEGO Technic, in schools and science museums. Once development is complete, I am hoping to convert these educational materials into other languages. Also, MINDSTORMS EV3 looks very interesting, so I'd like to issue an idea book for this kit as well.

* "Karakuri" is a Japanese word, meaning "mechanism". This word is often used for the traditional mechanized puppets or automata from Japan.

Yoshihito Isogawa:
http://www.isogawastudio.co.jp/legostudio/
http://www.youtube.com/user/ISOGAWAYoshihito
http://www.facebook.com/isogawastudio

The LEGO Technic Idea Book series:
http://www.amazon.es/s/ref=nb_sb_noss?__mk_es_ES=ÅMÅZÕÑ&url=search-alias%3Denglish-books&field-keywords=The-LEGO-Technic-Idea-Book
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A different experience

By Legotron

There are many anecdotes in the world of events related to constructions with LEGO® bricks, and also many interesting experiences to talk about. Many of them are forgotten, but some of them leave a profound mark and are worth telling.

We received several requests to have guided visit for blind people to the HispaBrick Magazine Event 2012, held in Terrassa (Spain) on December 2012. They requested these visits individually or in small groups. At first, we were worried, because we didn't know if it would be possible to show them our constructions in a way they could enjoy them. But we went ahead, as it was interesting to share our creations with everyone. We understood that the best way to address these requests were guided visits with explanations and the possibility to touch some of the constructions available at the exhibition. This may seem to be an easy task, but that was far from true. The main problem was the large number of visitors that were present in the exhibition area. Many of them were children who ran and went crazy when they saw the LEGO MOCs from a distance. So we had to carefully plan the route and the places to make these visits possible, and coordinate all the exhibitors who assisted in the task. But it was worth it, because it was a great experience.

The attendees were organized to explain their constructions to the blind people when they visited the area with their constructions. They had to choose their most interesting MOCs in order to be part of the route. They were told to give an explanation and, whenever possible, to bring some of the constructions near the blind people, so that they were be able to touch them. We established a small area free of visitors in every diorama or large construction that was marked for this visit, to ease this task. They were able to listen to the corresponding explanations while they touched the LEGO MOCs they were shown. This activity was repeated in every part of the exhibition, so that they could have the same perspective of the event as the rest of visitors.

Personally, I think it was one of the most exciting moments of the event. When the group reached my area I tried to do my best. I wanted to explain my creations and to share them. Of course they needed to touch the MOCs in order to understand what I was talking about, and it wasn't any problem. Al first I was a little nervous because I didn´t know how to explain the visual aspect of my creations. But things went very nice. I was very satisfied when they began to ask questions about everything they touched while I was explaining. They could understand the details, and we had a very interesting conversation about the MOCs and the different techniques I use. I showed them my collection of military vehicles and some of the modules of my dioramas. They touched them carefully asking for every detail they found, the reasons I'd used every part and the way I transform the real objects in the scaled LEGO MOCs they touched. When you can see the constructions you are able to realize how big or detailed they are, but it is not easy to convey the same impression with words. Unfortunately we were not able to share some of our most interesting MOCs, because some of them were too big or fragile to be moved out of their place. But we were able to show many of the different constructions that were brought to the event.

This was an opportunity to share our hobby in a different way, and it was a pleasure to be part of it. I was glad to know that they enjoyed the exhibition and that they had a great time with us.
#

Interview: Brotherhood Workshop

By HispaBrick Magazine®

Pictures by Brotherhood Workshop

Fans of LEGO® and LOTR have been surprised by the appearance of a series of stop-motion videos with original story lines and a sense of humour that have not been able to eclipse the quality of the productions. Today we talk with one of the creators of these little gems of the seventh art.

HBM: For starters, tell us how the Brotherhood Workshop started

BW: I started animating with LEGOs when I was 11 years old. After doing so for 2 years, I moved onto claymation, which I continued doing up through college. My thesis project at Biola University was a 30 minute claymation fantasy epic called "Rise of the Zerad" (I will probably end up posting the film as a webseries to my youtube channel sometime this year). The film won several awards and screened at multiple film festivals, but never really took off like I had hoped. So for several years, I had to put aside stop-motion animation in order to find a job to support myself. Shortly after graduating from college, I got a job as a video editor for an agency called Contexture International. The office had a great community and great projects to work on, but nothing that really met my creative desires, and particularly my desire to animate. After working there for two years, I knew it was time for a change. I decided that I would try a different route with my animations. Rather than focusing on a single massive project for years at a time, like I had done in the past, I would focus on short,

funny, animations that would get me noticed in the youtube community. My coworkers and my boss were very supportive and let me set up an animation studio in an unused corner and gave me free access to all the film equipment that I needed. I still had to work full time to support myself, but I spent my off hours creating simple LEGO videos, hoping to get my stop-motion career off the ground. And that's where it all started.

HBM: How many people make up BW and what are their tasks?

BW: It's hard to say exactly how many people are involved and what their rolls are because I have had so many friends that have helped out on different levels. At the moment I would say the core members are as follows:

- Myself (Kevin Ulrich), Director and Animator
- Brian Ulrich, Sound Designer (but he will be doing some writing for some upcoming videos)
- CJ Ulrich, who does visual effects
- Rick Cortez, who also does visual effects
- David Ulrich, who designs and builds my custom models

And of course I have other friends who help out with brainstorming sessions and moral support, and bringing me lunch on the weekends when I'm working hard. Thanks Torry!

De izquierda a derecha: Kevin, CJ, Brian, David y Eric

HBM: How did you learn to make stop motion?

BW: By doing it. Plain and simple. Never had a class. Never had a mentor. Never watched a tutorial. Just up and did it. Was awful at first. Got better over 13 years.

HBM: What kind of programs do you use?

BW: I use Final Cut Pro 7 for the video and audio editing. Dragonframe for image capture. Adobe After Effects for the VFX.

HBM: How much time and effort is needed to create a video?

BW: It very much depends on the complexity of the video in question. But on average I would say around 50 hours for a 1 minute video.

HBM: Have you developed any special techniques o tricks to do a better job?

BW: Oh yes. Far too many and too complicated to describe here.

HBM: Where do you get your inspiration? Are all the ideas yours or do you receive advice and ideas from other people?

BW: The Lord of the Rings™ movies themselves have been the source of most of my inspiration. But I have many brainstorming sessions with my friends and coworkers to help come up with the jokes.

HBM: Do you work from a tight script or do you develop the ideas while making the video?

BW: The idea develops as I go along. I have a starting point and a punchline in mind, but the details I make up as I go.

HBM: What do you find most difficult when making a video?

BW: Moving lots of characters at the same time. That is the worst. Especially when you get up to twenty or thirty character in frame at the same time.

HBM: Have you made any non-LEGO® films? Is there any difference between working with LEGO and with other media?

BW: Yes, I have done both claymation and live action films. And yes there is a HUGE difference. LEGOs are far more easy and fun to work with. However, it is limiting because LEGOs aren't well suited for darker themes or more serious subject matters. You have to maintain a humorous, tongue in cheek approach or else your work ends up feeling pretty melodramatic.

HBM: Have you been criticized for using non-LEGO elements? Do you think it improves your videos or would it be possible to do everything in landscapes that were 100% LEGO?

BW: Not that I'm aware of. I think it really helps the "flavor" of the video to use more realistic elements, especially rocks and trees and such. It gives the video a gritty, more believable feel. And that is what LEGO has been doing in their packaging for years, showing the featured set in a non-LEGO setting. So I feel it is totally consistent with the brand and look they have had for years.

HBM: In addition to LOTR is there any theme you are tempted to make a video about?

22

BW: Oh yes. Lots. The reasons I have specifically targeted Lord of the Rings are threefold:
1. The sets were brand new and popular.
2. The Hobbit movies coming out would drive views to my videos.
3. I'm kind of a Tolkien fanatic.

However, now that I have an established youtube channel, I may start branching out to other genres. Batman™ and Harry Potter™ are the strongest candidates.

HBM: Do you have any plans for a longer film?

BW: Oooohhh yes. My friends and I are working on a screenplay for a Claymation feature we would like to one day produce. But we will need major funding for that. Until then, short videos it is!

HBM: Have any minifigs been hurt while filming?

BW: Yes sadly. Some have clay residue that will never fully go away. Others have joints so loosened they won't keep their position anymore. But hey, it's worth it.

HBM: Do you have some advice for people who want to start making stop motion videos?

BW: Just do it and don't stop. You may not be very good at first, but experience is the best teacher there is.
#

myBrickset

By HispaBrick Magazine®

Pictures by Richard Lockwood

There are many websites devoted to LEGO®, and a steadily increasing number of smartphone applications. We have talked with Richard Lockwood the creator of the application myBrickset for Android, named after and powered by the incredibly useful Brickset website.

HBM: How did the idea for the application come up?

RL: The app was first conceived after being frustrated when shopping and unable to compare set prices without paying for a data plan, hoping for a cellphone signal, then navigating a website on a tiny screen. As Brickset makes all of their data available for free, and with the blessing of the site's admin to cache the data offline, I set about creating a native app that would be easy to use and provide instant results without relying on a data plan. It ended up being quite useful, so to give something back to the community I signed up for a Google Developer licence and published it on Google Play where anyone can download it for free.

HBM: What are the strengths of myBrickset?

RL: myBrickset is currently one of the most comprehensive LEGO apps available on any mobile platform, providing set details and photos for current and retired sets. If you've lost your set instructions you can even download them! In addition to this, it's possible to keep track of how many of each set are owned or wanted, as well as additional notes (I use this to help remember what presents I get for my niece & nephews). And the pièce de résistance is it'll even sync these details with a Brickset account. With an active internet connection, myBrickset automatically updates itself with the latest available set information and will provide high resolution images for sets being looked at.

HBM: What are your plans for the future?

RL: I have many plans for the app's future development, but give priority where possible to requests from users. I actively solicit feedback and encourage everyone who uses the app to let me know of any problems they experience or improvements they'd like to see. This is especially important with the wide variety of Android installations available, no matter how well I test there's always going to be issues with certain handsets. Luckily there have only been a couple of reported issues so far, and with the assistance of the reportees all have been resolved.
If anybody would like to contribute more directly to the app's development, I would love some better graphics for the Google Play site! I'd also like to investigate translating the app eventually, so please contact me if you'd be willing to assist with this. Non-copyrighted images of minifigures are welcome too, currently the lack of these means I can only include sets in the app.

HBM: And for free...

RL: The app is totally free and I make no money out of it, but I do enjoy receiving positive feedback and reviews on the Google Play listing. At the time of writing, myBrickset has 102 reviews with an average score of 4.7/5 and 11000 independent installations.

HBM: How much time have you invested in the development of the application?
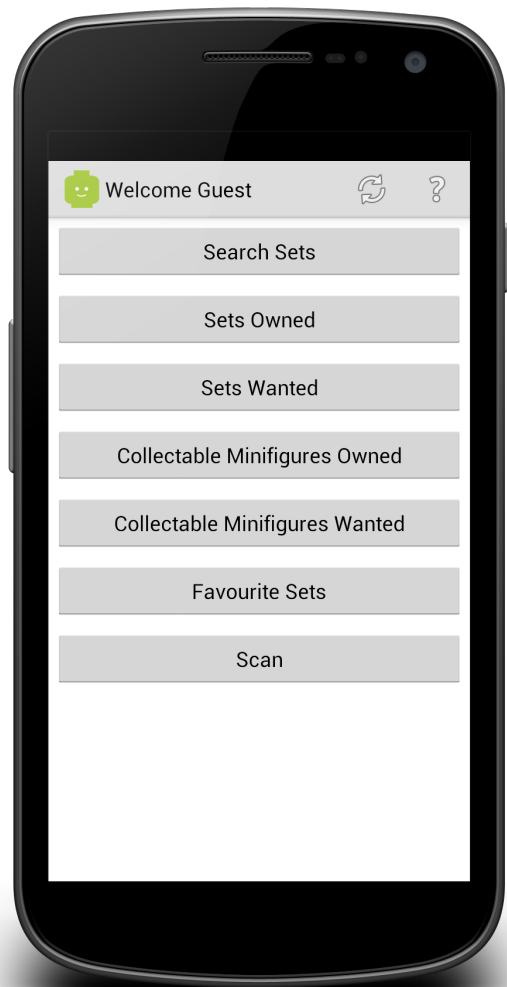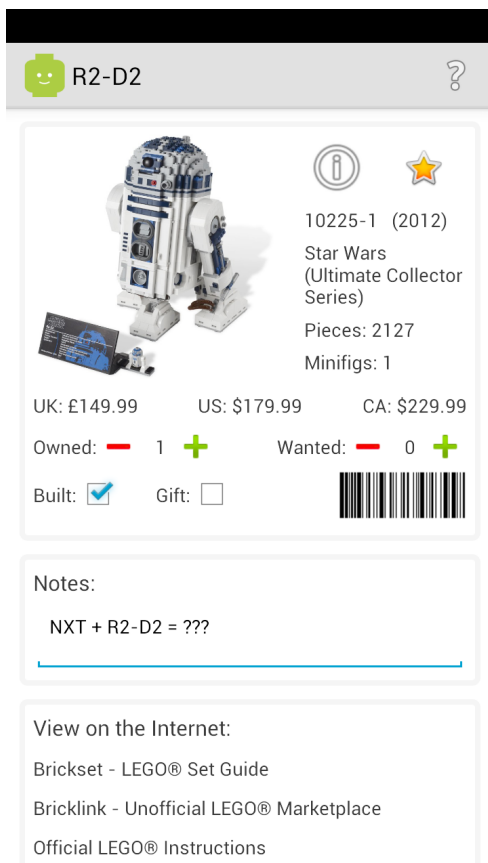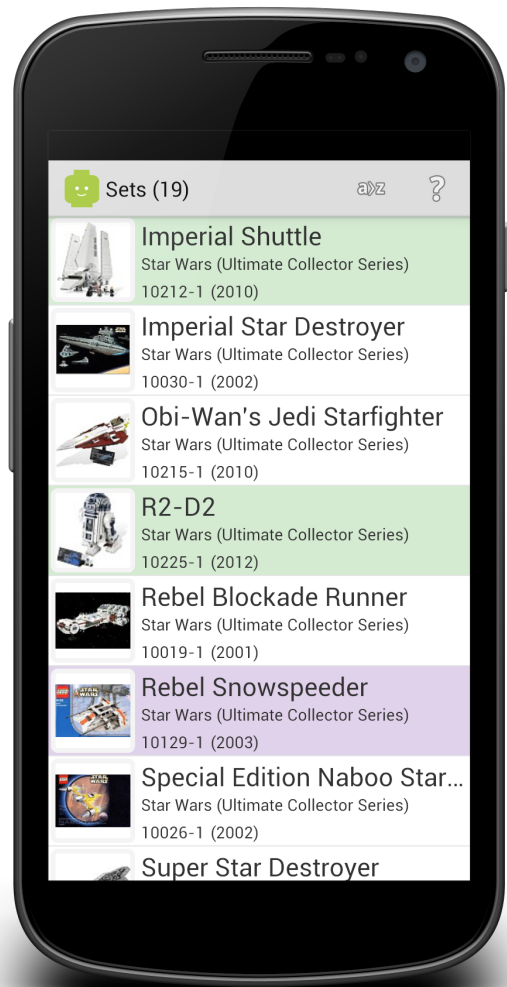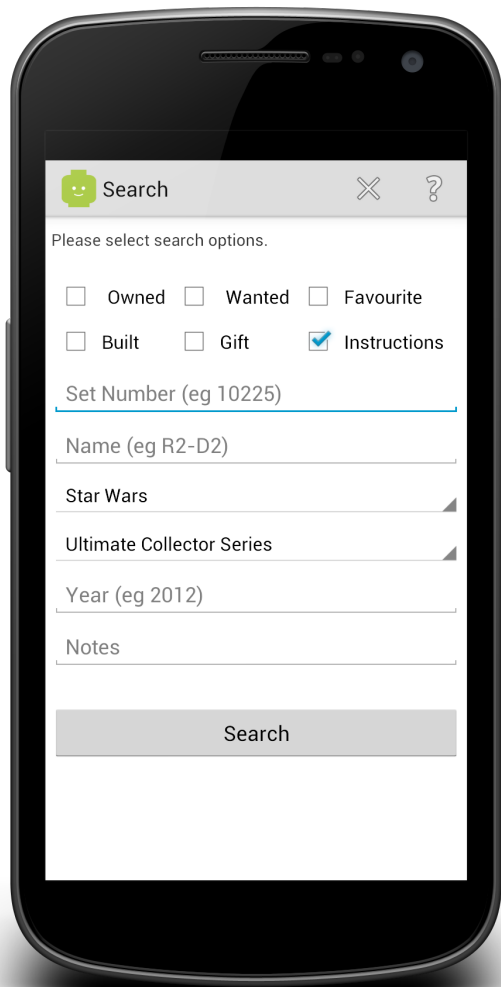
RL: I don't know how many hours have gone into the app's development, but each new release tends to contain between 50 and 100 hours of work. My development schedule is quite sporadic as it has to revolve around work and personal commitments (and playing with LEGO® of course!). When I can I try to get in 4 to 6 hours a night during a development stint.

If you'd like to try myBrickset, it can be downloaded for free from Google Play and the Amazon App Store. I can be contacted directly for support, feature requests, etc at mybrickset@otissoft.co.uk.

I'd like to take this opportunity to thank Huw at Brickset for providing the LEGO community with access to the data he has collected, enabling the synchronisation of users' set information and working with me during the app's development. #

25

The LEGO® MINDSTORMS® Evolution

By Jetro

Pictures by The LEGO Group

2013 marks the 15th anniversary of the first LEGO® MINDSTORMS® set, the Robotics Invention System, which featured the RCX, one of the first programmable bricks marketed by LEGO and developed in collaboration with the MIT Media LAB. However, the evolution of LEGO robotics, which came to be known under the theme name MINDSTORMS, started several years earlier. The first page in that evolution was written in 1984, and the events that led up to that moment trace back even further.

In 1980 Seymour Papert wrote the book 'MINDSTORMS: Children, Computers and Powerful Ideas' – which is where the LEGO robotics product got its name from. In this book he explored to groundbreaking concepts: children can become proficient with computers, and learning to use computers can change the way they learn in all other areas.
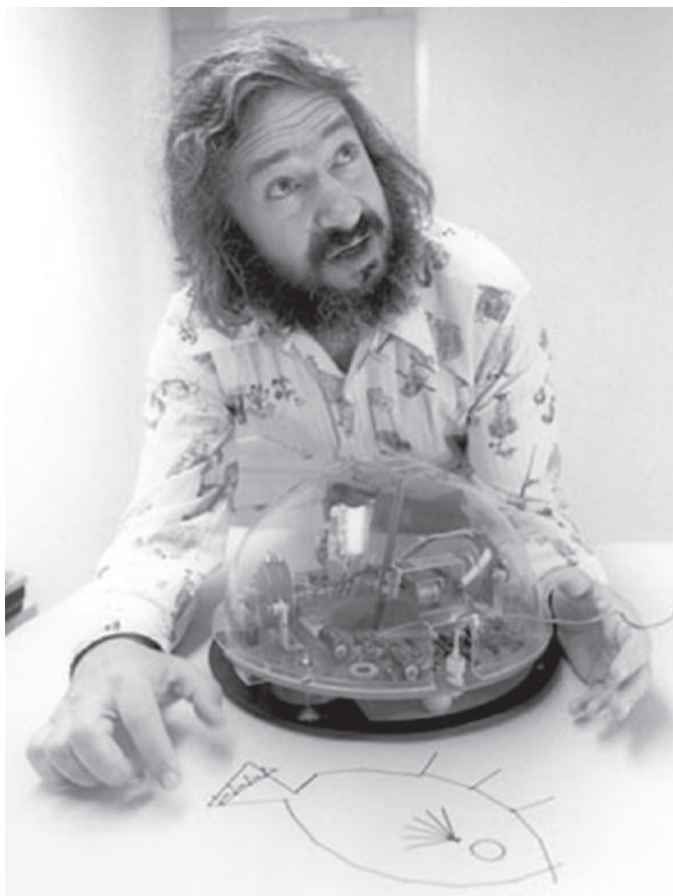
In 1984, Kjeld Kirk Kristiansen, President and, at the time, CEO of LEGO, saw a TV program in which children used the LOGO programming language, developed by Wally Feurzeig and Seymour Papert, to control the behaviour of turtle robots.

These turtles could draw complex geometrical patterns using relatively simple instructions. Kjeld was interested and asked his management to contact Seymour Papert.

The LEGO Group visited the MIT Media Lab in Boston which was founded in 1985 and the very next year the first computer-controlled LEGO products were released. The LEGO Interface A (marketed as set number 1093 and 9750) consisted of a control interface that was connected to a computer serial port and could control several 4.5V motors and sensors. The interface could be used in conjunction with LEGO Technic sets from the Dacta theme, such as technic Control 1 and 2 which featured such constructions as a robotic arm prototype or a plotter. To program these creations a special version of the LOGO computer language was developed.

The drawback of both this interface and its successor, the Control Lab Serial Interface (9751) was that the creations they controlled were attached to the computer with wires and so autonomy was limited, but as early as 1986 the product development department "LEGO Futura Boston Branch" was set up to work closely together with the MIT Media Lab and the following year this team came up with the first working prototype of a programmable brick.

More than a decade would pass before such a brick was marketed. This was due to the fact that there were still very few households that had a PC, and the cost for the components
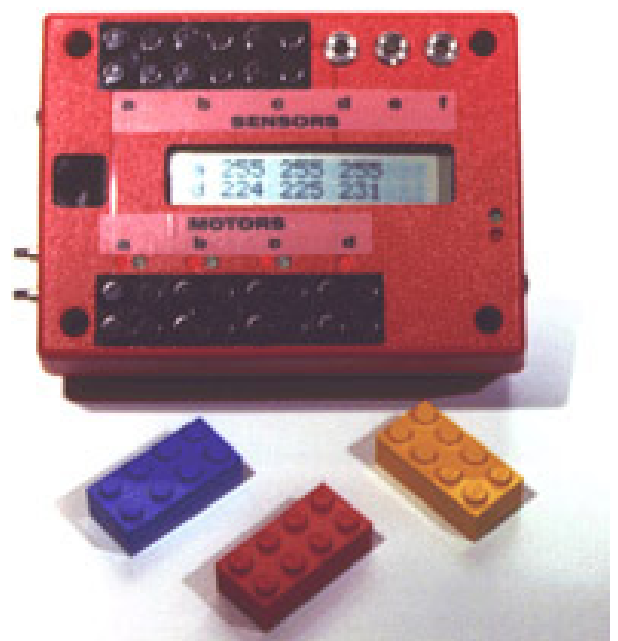
was high. However, in 1997 LEGO® MINDSTORMS® becomes a trademark and the following year the LEGO MINDSTORMS Robotics Invention System (RIS) is launched in the USA and UK. At the core of this product is the RCX. The programming language used for this pBrick (programmable brick) was a radical departure from the text based LOGO language. The RIS software was a visual programming language in which programming blocks were stacked vertically down. A second programming option for the RCX was ROBOLAB™, a software based on National Instruments LabVIEW™ and developed for the LEGO MINDSTORMS sets for schools.

In order to promote this new and revolutionary product ROBOTour '98 Across America was organised, visiting 30 cities to draw attention to the product. At the same time the FIRST® LEGO League was launched, a partnership between the LEGO Group and FIRST (For Inspiration and Recognition of Science and Technology), with the goal to inspire and stimulate young people's interest in science and technology through engaging, hands-on and minds-on experiences. One of the models of the retail set featured a driving base with a pen holder, a clear reference to the turtle bots that inspired the LEGO Robotics effort.
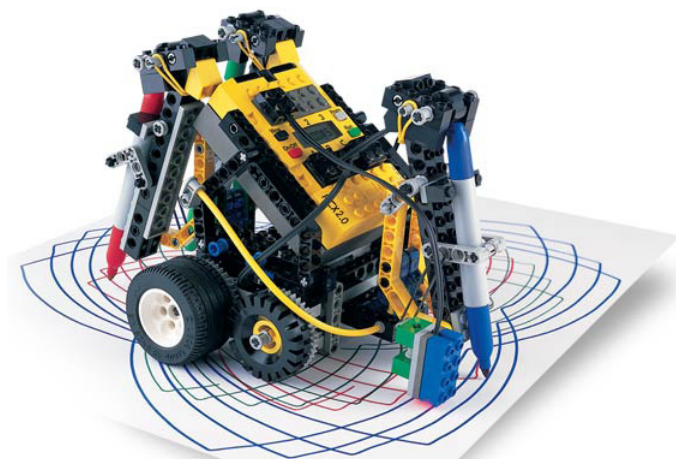
The launch was an overwhelming success, and not just for children. From August to December 1998 no fewer than 80,000 sets and to much surprise, 52% of all robotics sets of the retail version (the version that is sold in toy shops, as opposed to the version specifically marketed for schools) are registered to adults. Within weeks a complete inventory of the electronic components used in the RCX as well as reversed engineered software solutions for the pBrick are proposed on the internet. LEGO is at first startled and uncertain whether to prosecute this apparent breach of its intellectual ownership of the product, but on second thought it decides to embrace the initiatives and actively collaborates with some of the AFOL pioneers in this field.

This collaboration led to some important involvement of AFOLs in the development of the second generation of MINDSTORMS robotics, the NXT, which was launched in 2006. In addition to using more advanced technology for existing functions in this pBrick, new technologies were incorporated, including Bluetooth and USB communication (substituting the earlier IR protocol), an additional sensor port, new sensors and the inclusion of rotation sensors in the motors.

The software that comes with the NXT is again powered by National Instruments LabVIEW, both in the retail and in the educational versions. Specific and more advanced sensors, compatible with the NXT, are produced by HiTechnic and later on by other manufacturers as well. The educational possibilities of the NXT set are expanded with several add-on sets, including the Green City Challenge Activity Pack which gives students the opportunity to solve real-world problems dealing with energy by building such elements as a power plant, a wind turbine and a dam.
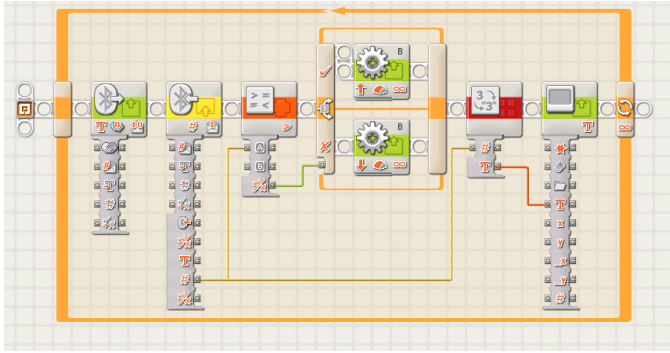
2013 marks the release of the 3rd generation in the MINDSTORMS® evolution, the EV3. Once again significant improvements have been made in the hardware, including a 4th motor port, the ability to expand memory with a MicroSD card, new sensors, a new small motor with encoder. The software for programming this new generation of MINDSTORMS is once again based on National Instruments LabVIEW but the firmware is basically a Linux OS, making this the most hackable MINDSTORMS set to date. But most importantly, it continues to be a tool that empowers children to become proficient in robotics and learn many other things in a hands-on and minds-on way.
#
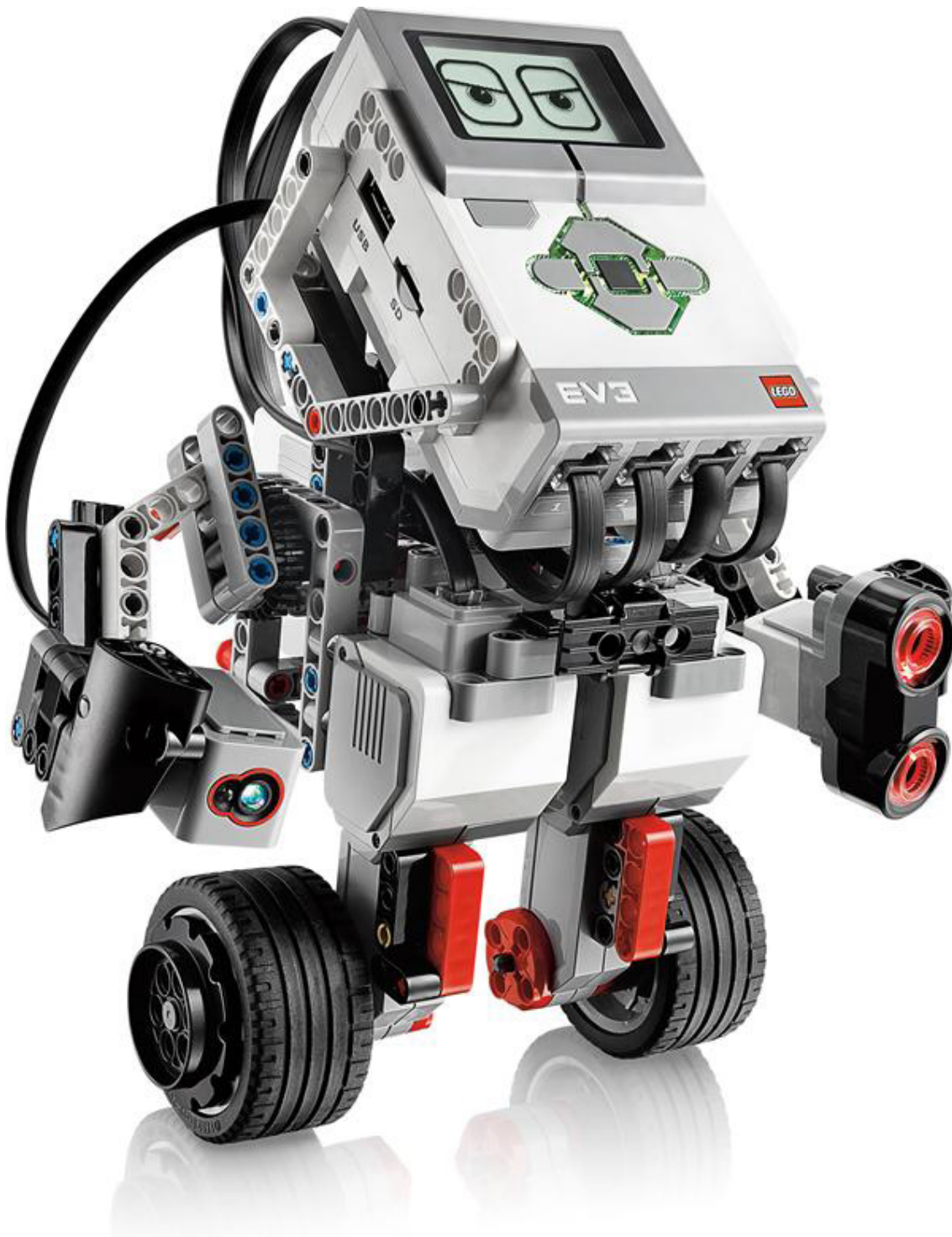
Robotics with LEGO® WeDo

An introduction to robotics for the youth with LEGO WeDo

By Diego Gálvez

If we talk about LEGO® robotics, the first thing that is likely to come to our mind is the LEGO MINDSTORMS® set. While this set has been the pillar of LEGO robotics (even from the RCX version) in 2008 LEGO presented LEGO WeDo.
LEGO WeDo is an innovative alternative that allows you to get started with robotics, building different prototypes using the materials included in the kit (construction parts, motors and sensors) and program them through intuitive software.

MINDSTORMS or WeDo?

In the attached comparison chart you can see that the MINDSTORMS set is much more complete and therefore allows for more complex prototyping.
This doesn't mean that WeDo isn't useful, quite the contrary, WeDo is a great opportunity for developing ingenuity and creativity. At first glance it might appear to be designed just for kids due to the limited set of construction elements, but that should not be seen as a limitation but rather as a challenge: how to develop prototypes that are equally complex as those built with MINDSTORMS? As an example I can tell you that this set allows you to build a line follower, and that while there is no light sensor in this set (the sensors that are included are for inclination and distance).

MINDSTORMS 9797	WeDo
437 piezas	158 piezas
3 Motor	1 Motor
5 sensores	2 sensores
1 Controlador	1 Hub USB

Taking the LEGO MINDSTORMS 9797 Educational set as a reference

Another point to evaluate is the software, which in both cases uses icons. The WeDo software is a lot easier to use than the MINDSTORMS software. This doesn't mean no advanced programming structures can be made (if, for, while, etc.), using the right combination of programming blocks these structures can be implemented in the WeDo software without these blocks being part of the environment as is the case in the MINDSTORMS software.

Tilt sensor

The tilt sensor is capable of recognising 5 different positions

Distance sensor

Detects objects at a distance of up to approximately 15cm.

LEGO® WeDo

Speaking about the actual set, it contains construction elements, electronic elements (a motor, sensors and the USB hub).

The USB Hub

The USB hub is the device that allows communication between the computer and the different actuators and sensors in the WeDo kit. A maximum of 2 actuators or sensors can be connected to a hub.
Although the set comes with a single hub, up to three hubs can be connected to a single computer with the software provided by LEGO.

Motor

The WeDo motor first appeared in the Power Functions theme in 2007. A year later it was included in the LEGO WeDo robotics kit.

An important difference between both "versions" is that in the Power Functions theme the motor is connected to a 9V power source (6 AA batteries). In the WeDo kit, however, it is connected to the USB hub which can provide a maximum of approximately 4.7V. As a result, the speed and power of the motor is a lot less.

Lights

Although no lights are included in the WeDo base set, The hub (and the software) also allow the use of Power Functions LED lights.

After having a look at the elements, it is time to take the next step and build and program your own prototypes. Inside the software, instructions for several models are included to help you get started.
In addition, I have designed some 40 new models[1]. For these models I have used the following stages of development.

Motor   Hub USB

Distance sensor   Tilt sensor
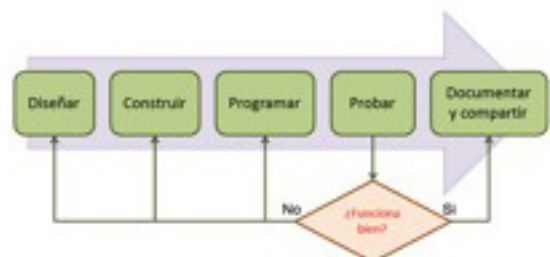
Design

Real life examples can be used (imitation).
Use your imagination to create something new. These ideas need to be translated to a physical medium (drawing on paper).
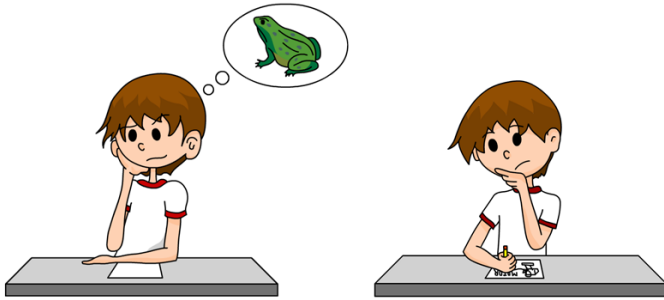
Build

Based on the proposed design you begin to build the prototype, using the elements, connectors, sensors, etc.

Program

What will the prototype do? This is achieved by means of a program, in the case of WeDo, the software that comes with the set.

Test

Visually verify that the prototype works as expected. This step is one of the most important ones as here we check if the result is as expected and we try to define what aspects of the design need to be changed in case it doesn't work as expected.

Document and share

After testing the model and making sure it works as expected, the next step is to document the result. This can be done using specialised software (MLCad, LEGO® Digital Designer, etc.) or taking detailed pictures.

As a first activity you can test your creativity designing an original model following each of the steps explained above. In the next article we will have a closer look at the WeDo programming environment, as well as some basic examples.

At notjustbricks.blogspot.com you can find multimedia materials (images and video) of the creations of the author, some of which include building instructions.
#

Handling water with LEGO®

By Oton Ribic

Despite the fact that boats and ships are a fairly common theme since its beginnings, incorporating real water in (or around) LEGO® models is still rarely seen. Reasons for that are quite obvious: narrow gaps between the parts and bricks, necessary for comfortable building, prevent sufficient watertightness to manipulate water — and even if they did, the hard plastic material they are made of would not budge its surfaces enough to stop the water passing in between. Anyone who has attempted to build a LEGO ship or a cup using only regular parts has invariably found it leaking.

One of the simplest solutions, offered by The LEGO Group, is to use the compact ship hulls. As their body is made of a single moulded piece, they float indeed, and yield enough displacement for a decent structure aboard. It is even sufficient to motorize them using Technic, though in that case more than one hull will probably be needed, in some sort of a catamaran layout, and maximum care must be taken to keep the electric parts as far from water as possible.

However simple and available in several sizes, compact hulls are only a limited solution for the cases when dealing with a marine vessel. For other applications of water, different approaches need to be taken.

Rivers, pools, streams and flumes

A most common requirement is to try to keep water in a specific area, or to let it flow through a desired channel — such as a swimming pool behind a villa, a river or a stream as a part of diorama, an artificial flume of a watermill, etc. Unfortunately, LEGO purists will have to accept there is no universal solution using LEGO parts only (though some specialized parts may sometimes help, such as using the aforementioned ship hulls hidden under the surface), but there is an alternative which will satisfy even most of them — a sandwich technique.

The idea of this technique is to build a pool or a river bed in two LEGO layers, with a carefully prepared piece of watertight plastic foil between them. The outermost, bottom layer serves as a foundation that keeps the structure together, the foil retains water, while the inner, top layer hides the foil for a pure LEGO look. If a foil is flexible enough, studs and connectors will connect easily through it, so there are rarely problems with strength of the construction. Of course, even if a bit of water stays or flows under the top layer, between it and the foil, it does not matter and is barely visible.

Foil used in the kitchen (such as one for keeping ingredients fresh) is ideal for this purpose — it is flexible, durable, thin

Compact LEGO ship hulls are a convenient and a simple way to keep boats afloat, and allow enough weight even for electrical remote power. (Thanks to Sariel for outboard motor design idea). Picture by Marina Zrile
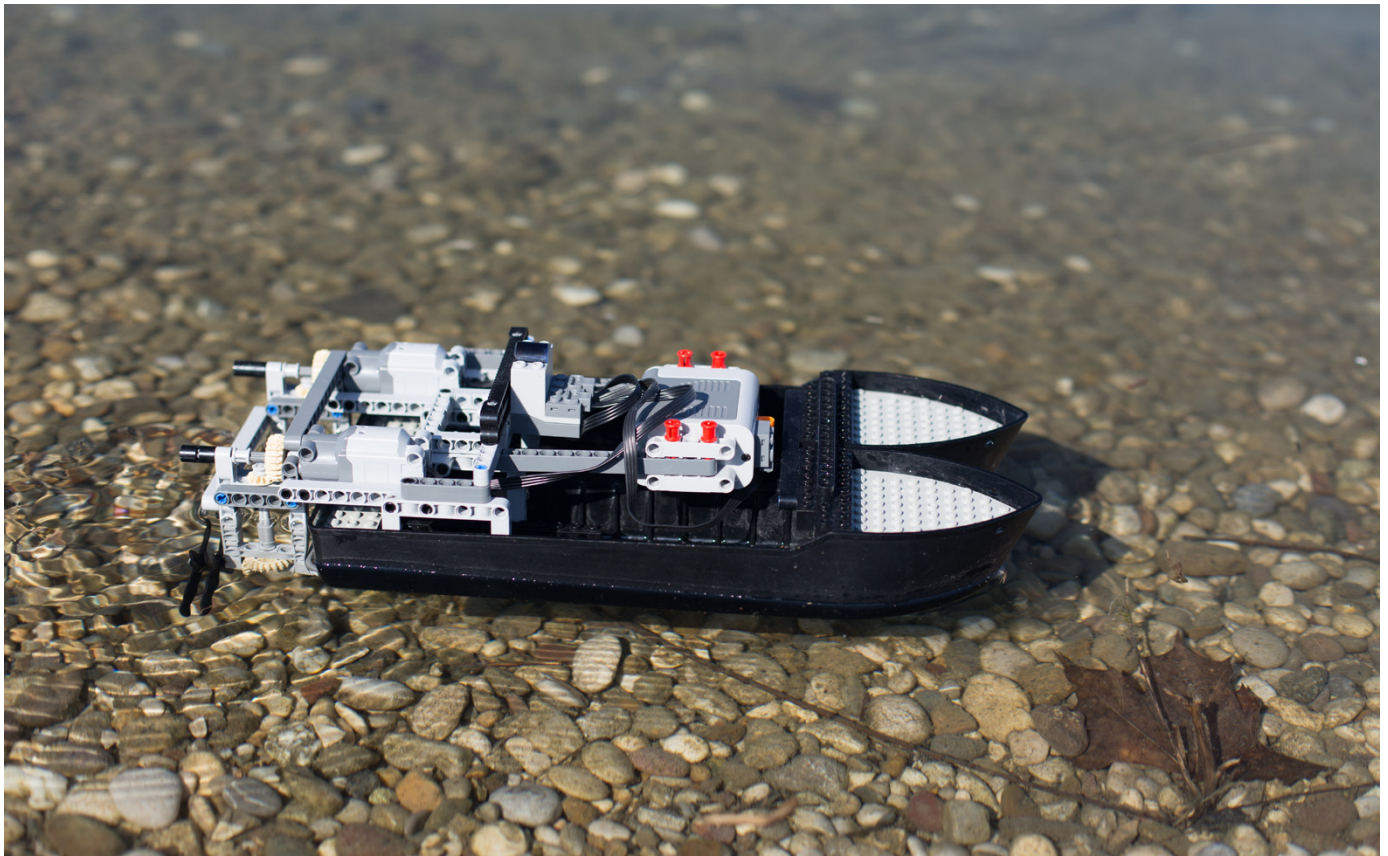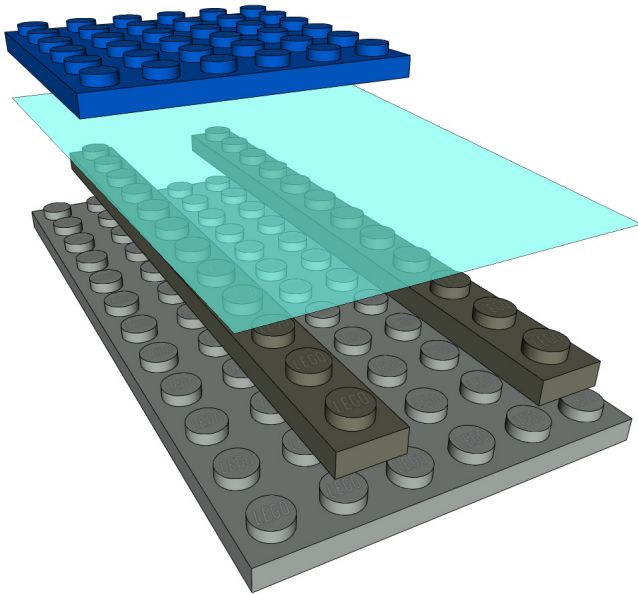
A typical composition of a sandwich watertight layout - the base at the bottom, distancers, flexible foil, and the cover (blue). Distancers help not to "overstretch" the foil.

enough to allow good stud contact through, easily cut and removed, long-lasting and comparatively cheap. Of course, any other type of a foil will serve as well if it is flexible and thin enough.

When employing this technique, make sure to build your water-holding structure entirely first, and then incorporate it into the rest, as it can be difficult to spread the foil if you don't have easy access to all ends of the bottom layer.

Water mechanics

Building functioning water pumps is possible, too. The point is to use LEGO® pneumatic parts, which serve quite well when repurposed for handling water. Whether you prefer to submerge the entire pneumatic pump, or employ a standard actuator cylinder connected to a distribution block (an older part, No. 4692) set to draw water from a container and pump it into a desired hose, is up to you — both approaches work. Of course, these pumps can be neatly combined with water containers described above.
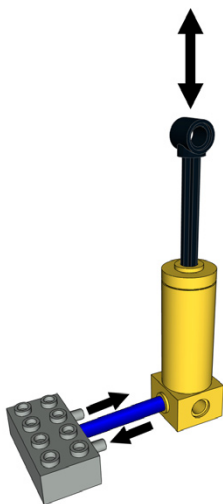
A pneumatic cylinder combined with a distribution block can be used as a simple water pump, which is also easily motorized.

Keep in mind, though, that pneumatic actuators are factory-lubricated to reduce piston friction and improve airtightness, but through a prolonged use with water, most of that oil tends to be washed out. Therefore, do not employ this type of pumps for anything related to drinks, and if the pistons move with difficulty once the cylinders are dried out, apply a little silicone oil to restore their smoothness.

For vice versa situation, i.e. obtaining mechanical movement from a moving water mass, various water wheels can be easily constructed using standard LEGO parts, especially Technic. Do not forget that the amount of moving water will usually be very small and such wheels can only have limited efficiency, so try to let the water pass entirely over one side or at least over its quarter (in more precise terms: prefer overshot or breastshot design instead of undershot), and let the wheel perform only very undemanding tasks, requiring minimal torque. Gearing down will not help significantly — there is very little actual power to begin with.

A watermill with flume and waterbed build using sandwich technique and a simple water wheel. The force is sufficient to turn simple millstones in the house through a couple of gears and axles.

Aqua-friendliness

For those that haven't yet experimented that far, it is useful to know that, fortunately, LEGO parts show no negative side-effects from a prolonged contact with water, and hold together just as well underwater as they do on a workbench. Also the decorations and decals are of high quality and will not fade underwater — at least not more than they would anyway, in the air. Besides making it easily washable in a washing machine or a dishwasher (at low temperatures), this allows even for some custom aquarium decoration!

The exceptions are, to an extent, chromed parts whose coating sometimes tends to dissolve over time. It does not damage the parts mechanically however, but only their shiny look. And of course, electric parts should never contact water at all.

Diving deeper

Finally, we can consider a difficult but an undoubtedly attractive idea of a remotely controlled LEGO® submarine. In theory, it may work — a sandwich method mentioned at the beginning may be used upside down, to provide an underwater air bubble where all the Power Functions parts would be contained, with axles and control rods entering the water underneath and leading to the various propellers and control surfaces via various gearboxes and mechanisms.

Needless to be said, such a submarine would be very sensitive to turning sideways, and would need an additional weight in some sort of a keel to counter the lift of the bubble. Finally, its control range would be limited because of water being relatively opaque for infrared light.

On the other hand, if you are ready to introduce more non-LEGO parts, an option is to wrap all the electrical components into a plastic bag, which should make the entire system safer and less demanding for a counterweight. But keep in mind that the motors, although initially functional, can get damaged if submerged, particularly their bearings.

Because of these reasons, unless you are ready and willing to risk lots of expensive parts and endure some frustration, a submarine controlled from above the surface with a couple of handheld pumps and hoses, controlled with submerged pneumatic cylinders, is a vastly more rational idea, where much less can go wrong — in the worst case, the parts will need to dry on a spread towel for a couple of hours.
#

Water handling tips in a nutshell

● LEGO parts and their decorations have no negative side-effects from a prolonged contact with water. Exceptions are chromed parts which fade, and electrics that should never touch water.

● Watertight structures using only pure LEGO parts are next to impossible, except for some specialized parts such as compact hulls.

● Simple method to build a watertight structure is a sandwich technique: narrowly fitting double layers or hulls with a watertight flexible foil in between. It works both for keeping the water away, such as for ship hulls, and for retaining it, e.g. for river beds and swimming pools. If accurately done, the foil can not be seen without disassembling the model.

● Pumping water is quite easy using LEGO Pneumatic parts, where they are employed the same way as if they were handling air. But do not use it for making drinks, and keep in mind they might need some extra lubrication afterwards if the original one gets washed out.

● Water wheels work, but try to keep water falling over as much of their surface as possible. Even then, do not have high expectations from obtained power.

● For controlling submerged models mechanically, prefer pneumatics controlled by handheld pumps via long hoses.

POV-Ray Tutorial (II)

By Eric Albrecht

Last time we learned how to create a POV-Ray render by starting with an LDraw file created in any editor, opening it in LDView, and exporting to POV-Ray. We also learned how to tell LDView to automatically use the LGEO library of POV-Ray parts to create better looking renders. Once this has all been set up per the last tutorial, all of it works without too much intervention on the part of the user. Open, export, open, render. If we want to advance further from here though, we're going to have to do some things manually and that means understanding what is actually inside the POV-Ray file. Let's start with that very simple file we created last time containing a single red brick. If you don't have that file, just export anything from LDView to get started.

```
// Generated By: LDView 4.2 Beta 1 Copyright (C) 2008 Travis Cobbs & Peter Bartfai
// See: http://ldview.sourceforge.net/
// Date: Sun Mar 03 19:50:43 2013
// Input LDraw File: brick.ldr
//
// This file was automatically generated from an LDraw file by the program
// LDView.  See comments above for further details.

#declare LDXQual = 3;      // Quality (0 = Bounding Box; 1 = No Refraction; 2 = Normal; 3 = Stud Logos)
#declare LDXSW = 0.5;      // Seam Width (0 for no seams)
#declare LDXStuds = 1;     // Show studs? (1 = YES; 0 = NO)
#declare LDXRefls = 1;     // Reflections? (1 = YES; 0 = NO)
#declare LDXShads = 1;     // Shadows? (1 = YES; 0 = NO)
#declare LDXFloor = 1;     // Include Floor? (1 = YES; 0 = NO)

// Model bounds information
#declare LDXMinX = -40;
#declare LDXMinY = -4;
#declare LDXMinZ = -20;
#declare LDXMaxX = 40;
#declare LDXMaxY = 24;
#declare LDXMaxZ = 20;
#declare LDXCenterX = 0;
#declare LDXCenterY = 10;
#declare LDXCenterZ = 0;
#declare LDXCenter = <LDXCenterX,LDXCenterY,LDXCenterZ>;
#declare LDXRadius = 46.8615;

// Camera settings
#declare LDXCameraLoc = < 856.136169,-357.441711,-534.972961 >; // Camera Location vector
#declare LDXCameraLookAt = < 2.6927083672914023,8.8443190579598649,-1.682618580794383 >;   //Camera look-at point vector
#declare LDXCameraSky = < -0.29004934789986447,-0.93969269365205865,0.18124297856689955 >; //Camera sky vector(<0,-1,0>will

#declare LDXFloorLoc = LDXMaxY; // Floor location. (Dependent on floor axis; MAX_Y is bottom of model)
#declare LDXFloorAxis = y;      // Floor axis (x, y, or z)
#declare LDXFloorR = 0.8;       // Floor Red
#declare LDXFloorG = 0.8;       // Floor Green
#declare LDXFloorB = 0.8;       // Floor Blue
#declare LDXFloorAmb = 0.4;     // Floor Ambient
#declare LDXFloorDif = 0.4;     // Floor Diffuse
#declare LDXAmb = 0.4;
#declare LDXDif = 0.4;
#declare LDXRefl = 0.08;
#declare LDXPhong = 0.5;
#declare LDXPhongS = 40;
#declare LDXTRefl = 0.2;
#declare LDXTFilt = 0.85;
#declare LDXIoR = 1.25;
#declare LDXRubberRefl = 0;
#declare LDXRubberPhong = 0.1;
#declare LDXRubberPhongS = 10;
#declare LDXChromeRefl = 0.85;
#declare LDXChromeBril = 5;
#declare LDXChromeSpec = 0.8;
#declare LDXChromeRough = 0.01;
#declare LDXIPov = 1;    // Use inline POV code from LDraw file? (1 = YES; 0 = NO)
#declare LDXBgR = 1;     // Background Red
#declare LDXBgG = 1;     // Background Green
#declare LDXBgB = 1;     // Background Blue
#declare LDXOrigVer = version;  // DO NOT MODIFY

// Camera
#ifndef (LDXSkipCamera)
camera {
        #declare LDXCamAspect = 1280/720;
        location LDXCameraLoc
        sky LDXCameraSky
        right LDXCamAspect * < -1,0,0 >
        look_at LDXCameraLookAt
        angle 8.876736
}
#end
```

The first thing you will notice is that there are multiple colors on the screen. Each color represent something specific in POV-Ray, so we'll talk about each separately.

Green is reserved for comments. POV-Ray totally ignores comments, so they are only there to help you, the user. LDView does a pretty good job of commenting its output to tell you what it is doing, and it is a good idea to create comments for yourself when you change the file so you can keep track of what is going on. This example file is quite simple and occupies only a couple of screens, but if you get thousands of parts your file will be many Mb of raw text and it can be pretty hard to find anything if you haven't commented it properly.

There are two ways to designate a comment line in POV-Ray. The most common way is simply to put two backslashes at the beginning of the line. Go ahead and try it. Type two slashes at the beginning of a line and you will see it turn green in the editor. Sometimes you may want to make a large block into a comment. For example, you might have two different lighting sets or two different cameras, and you can "comment out" one or the other to disable them. To turn multiple lines into a comment, you put /* at the beginning and */ at the end. You can span as many rows as you like, even the entire file. Try it out.

Purple text is used for commands. There are hundreds of different commands in POV-Ray, but you'll only be using a small number of them. You can see a sample of those used by the LDView export in the file.

Blue text is used for values. For example, this could be coordinates or any other kind of number.

Red text is used for operators such as +, -, * and so forth. You can use it to do math inside your file. This becomes really important when you are programming animations, for example. Red is also used for filenames if you call external files, which you'll do a lot.

Finally, black text is for everything else but this mostly amounts to variable names.

Now let's start at the beginning of the file and see what's in there. The first few rows are comments from LDView just telling you that this file is from LDView and crediting Travis Cobbs for all his excellent work writing the program.

First comes some variable definition.
The six variables here can be used to change the behavior of the render.

· The first variable, LDXQual, changes the overall quality of the render. If you put a 0 in here your parts will be replaced with simple rectangles which will allow you to do a render very quickly and check that the camera angles and lighting are correct. If you put a 1 in here you get real parts, but light is not refracted through transparent parts which takes a long time. 2 is the standard setting. Finally, 3 turns on the stud logos which means a tiny LEGO® logo is represented on every stud. Stud logos add a lot of detail to your model but of course this comes at the expense of memory and processing time.

· Next is LDXSW which controls a seam width. This is a way of adding a little bit of space between parts so that they do not all look perfectly flush which is what you will get by default using LDraw geometry. A value of 0.5 (this means ½ of an LDraw unit) works really well here. One caveat is that if your model has stickers this will make them disappear because stickers are less than 0.5 LDU thick! It took me a long time to figure out why that was happening.

· LDXStuds turns all the studs on or off. I would never shut this off. The whole point of doing a render is to have it look real and LEGO without studs it just doesn't. The only time I have ever shut this off is when I did a render so big (over a million parts) that you couldn't see the studs anyway and shutting them off decreased the memory requirements massively.

· LDXRefls turns reflections on and off. See above. I always leave them on.

· LDXShads is for shadows. Same as above.

· Finally, LDXFloor turns a floor on and off. Note that LDView assumes that your model is built with -y as the up direction which is what MLCAD uses. To place the floor, it therefore finds the most positive y value in the model and creates an XZ plane at that location. You may or may not want to see this, and even if you want it, this may not be where you want it. Of course, it can be moved and the behavior of it can be changed.

After that is a section called Model Bounds. This defines the maximum extent of the model in x, y, and z. You may not see the point of this, but the availability of these variables is amazingly useful later. The maximum extents also allows the center to be calculated. There is also a radius which assumes the rectangular prism mapped by the other values is a sphere. This is used to place the camera and lights.

Next comes the section which defines some variables used by the camera. These include the position of the camera, the direction it is pointing, and a definition of which way is up. These are LDXCameraLoc, LDXCameraLookAt, and LDXCameraSky.

Next come a whole lot of other variable definitions. I won't go through every one in detail, but they include the position of the floor, the color of the floor, some properties of the floor, some variables used to define colors, and the background color. In general, we aren't going to mess with these, but of course anything can be changed. One thing to note here is that colors are defined as percentages of red, green, and blue. So each part of the RGB value can be between 0 and 1. If you are converting from another system like hexadecimal in which full color is FF or 255, you'll have to do some math to make them percentages instead.

Now the camera itself is defined. There are lots of kinds of cameras in POV-Ray, but the default camera from LDView will always be a perspective camera. If you want to use any of the other specialty types (like fisheye), you will have define them yourself. The parameters for the camera come from the variables defined above. These, in turn, came from however you had the view set up in LDView. The camera simply matches what you saw in LDView. One thing to be careful of here is LDXCamAspect which defines the aspect ratio. This will be based on the shape of your window in LDView. When you render the image, you need to use this same aspect ratio or your render will be skewed. You do not need to match the pixel values, only the ratio. It is good idea to make sure your window in LDView is a standard ratio like 4:3 or 16:9 before exporting in the first place.

```
// Lights
#ifndef (LDXSkipLight1)
light_source {  // Latitude,Longitude: 45,0,LDXRadius*2
        <0*LDXRadius,-1.414214*LDXRadius,-1.414214*LDXRadius> + LDXCenter
        color rgb <1,1,1>
}
#end
#ifndef (LDXSkipLight2)
light_source {  // Latitude,Longitude: 30,120,LDXRadius*2
        <1.5*LDXRadius,-1*LDXRadius,0.866026*LDXRadius> + LDXCenter
        color rgb <1,1,1>
}
#end
#ifndef (LDXSkipLight3)
light_source {  // Latitude,Longitude: 60,-120,LDXRadius*2
        <-0.866025*LDXRadius,-1.732051*LDXRadius,0.5*LDXRadius> + LDXCenter
        color rgb <1,1,1>
}
#end

#macro LDXSeamMatrix(Width, Height, Depth, CenterX, CenterY, CenterZ)
#local aw = 0;
#local ah = 0;
#local ad = 0;
#local ax = 0;
#local ay = 0;
#local az = 0;
#if (Width != 0)
#local aw = 1-LDXSW/Width;
#end
#if (Height != 0)
#local ah = 1-LDXSW/Height;
#end
#if (Depth != 0)
#local ad = 1-LDXSW/Depth;
#end
#if (Width != 0 & CenterX != 0)
#local ax = LDXSW/(Width / CenterX);
#end
#if (Height != 0 & CenterY != 0)
#local ay = LDXSW/(Height / CenterY);
#end
#if (Depth != 0 & CenterZ != 0)
#local az = LDXSW/(Depth / CenterZ);
#end
#if (aw <= 0)
#local aw = 1;
#local ax = 0;
#end
#if (ah <= 0)
#local ah = 1;
#local ay = 0;
#end
#if (ad <= 0)
#local ad = 1;
#local az = 0;
#end
matrix <aw,0,0,0,ah,0,0,0,ad,ax,ay,az>
#end


background { color rgb <LDXBgR,LDXBgG,LDXBgB> }

#declare lg_quality = LDXQual;
#if (lg_quality = 3)
#declare lg_quality = 4;
#end

#declare lg_studs = LDXStuds;

#include "lg_defs.inc"

#include "lg_color.inc"
```

Now the lights are defined. The default lights are 3 white point lights. This section, more than any other, is what we will be changing later to make the scene more realistic. You can see that the lights are arranged using a latitude and longitude concept. Each light has a position and a color. The color is defined as a vector with RGB values. rgb <1,1,1> is white.

Next comes a bunch of math which defines a subroutine used to make the seams between the parts. You definitely don't want to mess with this.

Next the background color is defined. This is also white by default. You can shut off the background entirely by commenting out this line.

POV-Ray files don't usually contain all the required information right in the file. Instead they call other files called "include" files. A large POV-Ray file may calls hundreds or even thousands of other files. This keeps the size of your file relatively small, but you need to keep in mind when planning for memory requirements that everything needs to be in memory when you render. Sometimes it is useful to open some of these files just to understand how much work POV-Ray is really doing.

The first two include files that are loaded are related to the LGEO library. lg_defs contains the definition of many variables used by LGEO parts files. This includes things like the size of a stud, what the logo looks like, the width of a plate, and hundreds of other things. Go ahead and take a look at it. Just right click on the red title of the include file and you can open it. lg_color is no mystery. It defines the colors used by LGEO. There are a surprisingly large number of LEGO colors!

```
#include "lg_defs.inc"

#include "lg_color.inc"

#ifndef (LDXColor4) // Red
#declare LDXColor4 = #if (version >= 3.1) material { #end
        texture {
                lg_red
        }
#if (version >= 3.1) } #end
#declare LDXColor4_slope = #if (version >= 3.1) material { #end
        texture {
                lg_red
                #if (LDXQual > 1) normal { bumps 0.3 scale 25*0.02 } #end
        }
#if (version >= 3.1) } #end
#end

#ifndef (LDXColor7) // Light Gray
#declare LDXColor7 = #if (version >= 3.1) material { #end
        texture {
                lg_grey
        }
#if (version >= 3.1) } #end
#declare LDXColor7_slope = #if (version >= 3.1) material { #end
        texture {
                lg_grey
                #if (LDXQual > 1) normal { bumps 0.3 scale 25*0.02 } #end
        }
#if (version >= 3.1) } #end
#end

#include "lg_3001.inc" // Brick  2 x  4

#declare LDX_brick_dot_ldr = union {
// Brick Render
        object {
                lg_3001
                matrix <0,0,-25,-25,0,0,0,-25,0,0,0,0>
                LDXSeamMatrix(80, 28, 40, 0, 10, 0)
                matrix <1,0,0,0,1,0,0,0,1,0,0,0>
                #if (version >= 3.1) material #else texture #end { LDXColor4 }
        }
#if (LDXRefls = 0)
        no_reflection
#end
#if (LDXShads = 0)
        no_shadow
#end
}

// brick.ldr
object {
        LDX_brick_dot_ldr
        #if (version >= 3.1) material #else texture #end { LDXColor7 }
}

// Floor
#if (LDXFloor != 0)
object {
        plane { LDXFloorAxis, LDXFloorLoc hollow }
        texture {
                pigment { color rgb <LDXFloorR,LDXFloorG,LDXFloorB> }
                finish { ambient LDXFloorAmb diffuse LDXFloorDif }
        }
}
#end
```

Next are some color definitions. You'll only find definitions for the colors you used. In this case, that is just red. So why is light gray there? The top level assembly is always considered light gray, so this will always be there. If you open the lg_colors file, you will see that the colors are defined not only with a color, but with some other surface properties like reflectivity. We will also end up making a lot changes here in later tutorials.

Finally it is time for the actual parts. In this case, we have only a single part: a 2x4 brick. This part has been replaced with an LGEO part, lg_3001. So all POV-Ray needs to do is call the lg_3001.inc include file. Again, if you right click on that text you can open that file. In the next page you can see how amazingly complicated that single part is!

This will start to give you an appreciation for the work POV-Ray is doing for you. Remember that this is only the definition of one type of part, and you may have hundreds of types of parts in your model.

Some parts do not have an LGEO substitute. In those cases, you will see a large part definition right here within the main POV-Ray file generated by LDView. This definition may span hundreds of pages for a complex part like a curved Technic panel or a Fabuland head.

Our scene only included one part include file, but a larger model may include many. Each is only included once, but there may be many instances of that part called when your model is assembled. That's what we find next in our file. Now that POV-Ray knows what a lg_3001 part looks like, we can place some bricks in space. This is the section that starts with "object". Here, an object is created in space from lg_3001. The most important line is this one:

matrix <1,0,0,0,1,0,0,0,1,0,0,0>

Remember when we learned a little about transformation matrices in the last lesson? The first nine digits here are the rotation in the x, y, and z planes right out of our LDraw file. The next 3 are the position in space, in this case 0,0,0. This is a very simple

38

```
/*************************************************************************/
/*                                                                     */
/* LGEO Libray Include File      (C) lgeo@digitalbricks.org (Lutz Uhlmann)  */
/*                                                                     */
/* 19970623 Lutz Uhlmann                                               */
/* 20071225 Lutz Uhlmann fixed stud orientation                        */
/*                                                                     */
/* This file is in no way related to the LEGO(tm) Group.               */
/* It is provided for private non-commercial use only.                 */
/*                                                                     */
/* lg_3001: Brick 2 x 4                                                */
/*                                                                     */
/*************************************************************************/
#ifdef(lg_3001)
#else
#declare LENGTH = 4;
#declare WIDTH = 2;
#declare lg_3001 =
union {
 sphere {
  <LG_CORNER_SPACE, LG_CORNER_SPACE, LG_CORNER_SPACE>, LG_CORNER_SPACE
 }
 cylinder {
  <LG_CORNER_SPACE, LG_CORNER_SPACE, LG_CORNER_SPACE>,
  <(LENGTH*LG_BRICK_WIDTH-LG_CORNER_SPACE), LG_CORNER_SPACE, LG_CORNER_SPACE>,
  LG_CORNER_SPACE
 }
 sphere {
  <(LENGTH*LG_BRICK_WIDTH-LG_CORNER_SPACE), LG_CORNER_SPACE, LG_CORNER_SPACE>, LG_CORNER_SPACE
 }
 cylinder {
  <((LENGTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE, LG_CORNER_SPACE>,
  <((LENGTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  LG_CORNER_SPACE
 }
 sphere {
  <((LENGTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>, LG_CORNER_SPACE
 }
 cylinder {
  <((LENGTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  <LG_CORNER_SPACE, LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  LG_CORNER_SPACE
 }
 sphere {
  <LG_CORNER_SPACE, LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>, LG_CORNER_SPACE
 }
 cylinder {
  <LG_CORNER_SPACE, LG_CORNER_SPACE, LG_CORNER_SPACE>,
  <LG_CORNER_SPACE, LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  LG_CORNER_SPACE
 }
 cylinder {
  <LG_CORNER_SPACE, LG_CORNER_SPACE, LG_CORNER_SPACE>,
  <LG_CORNER_SPACE, ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE>,
  LG_CORNER_SPACE
 }
 sphere {
  <LG_CORNER_SPACE, ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE>, LG_CORNER_SPACE
 }
 cylinder {
  <LG_CORNER_SPACE, ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE>,
  <LG_CORNER_SPACE, ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  LG_CORNER_SPACE
 }
 sphere {
  <LG_CORNER_SPACE, ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>, LG_CORNER_SPACE
 }
 cylinder {
  <LG_CORNER_SPACE, LG_CORNER_SPACE, (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  <LG_CORNER_SPACE, ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), (LG_BRICK_HEIGHT-LG_CORNER_SPACE)>,
  LG_CORNER_SPACE
 }
 cylinder {
  <((LENGTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE, LG_CORNER_SPACE>,
  <((LENGTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), ((WIDTH*LG_BRICK_WIDTH)-LG_CORNER_SPACE), LG_CORNER_SPACE>,
```

example, but this term can get really complicated. There may be cases in which you want to manually move or rotate a part by changing these values.

Next you can see that the color red is assigned to this part (LDXColor 4). Again, it is nice to be able to change these colors manually by knowing where to look.

If we had a larger model made from submodels, we'd see each submodel defined as a "union" or a combination of parts, and then those submodels would be joined with a larger union at the end. The last object in the file before the floor is always the top level assembly. In this case, that assembly is just our one brick. You can see what I told you earlier how this top assembly is defined as light gray (LDXColor 7). This doesn't mean anything. The parts already have a color and this will not overwrite them. Only part colors are important, not assembly colors.

The very last thing that is defined is the floor, and it uses the variables from the beginning of the file. Again, we'll be making changes to this later.

It may seem like most of the file was "overhead" defining variables and cameras and lights, but not much model. That is true for such a small model of a single part. When you get a big model, you'll find

Having now been through a file, you should have a basic understanding of what it all means. This is a small file that is relatively easy to follow. Now I encourage you to just try changing everything and see what happens. Change each variable one at a time and observe the effect. This is the best way to learn what they do. Next time I'll teach you how to change some of the most important variables and definitions to improve the quality of your renders.
#

Leaf Weaving

A Technique for Building LEGO® Trees

By Katie Walker

Leaf weaving is a way to weave the branches of LEGO® foliage pieces together. By doing this with multiple leaves, you can create a chain of leaves that can be wrapped into circles, forming different shapes for trees and bushes. You can see four different variations of this technique in the trees behind the wall in the Pool Party scene in Image 1.

Image 2 shows the basic form of the three largest trees in the Pool Party. These were made by weaving 12 large leaves together into a circle. Other sizes and shapes of trees can also be made with this technique.

Weaving Branches Into a Circle. In Image 3.1, the different branches on a large leaf are labeled, starting with A on the bottom branch and going up to D just before the top. (The branch pointing straight up is not labeled.) To weave the leaves together, I interlace the pieces so that all of the lettered branches from one leaf overlap the corresponding branch on the other leaf. It's pretty easy to get branch A and branch B to overlap, as shown in Image 3.2. To get the tips of the leaves

Image 2: Tree with 12 woven leaves

40

to angle in towards each other in a more triangular shape, you need to weave branches C and D together too (Image 3.3). That part can be hard to do.

To make the tree in Image 2, I connected 12 woven leaves together into a circle. For this version, each leaf connects to the next in the exact same way. As you make the chain of leaves, make sure that each new leaf is always added to the chain in the same way as the previous one. If branch A on the right leaf is going above branch A on the left leaf, then it should go above on all of them. Image 3.4 shows a chain of five leaves woven in this manner. Image 3.5 shows the completed circle of 12 leaves. Connecting the first leaf to the last in order to finish the circle can be tricky, but it is do-able.

Image 3.3: Branches A, B, C, and D all woven together
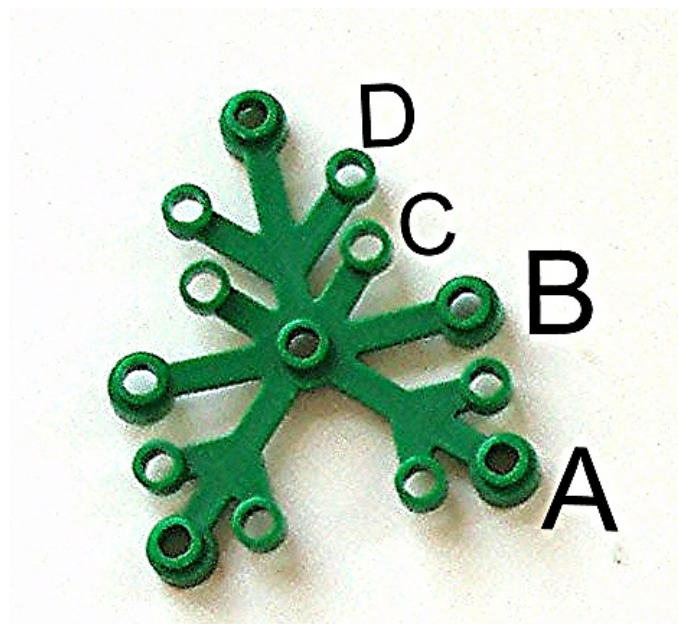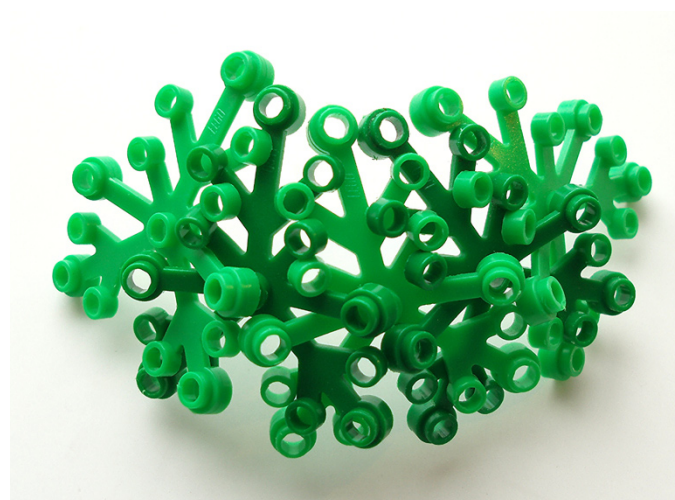

Image 3.1: Labeled Branches Close-up

Image 3.4: 5 leaves woven together

Image 3.2: Branches A and B woven together

Image 3.5: 12 leaves woven into a circle

Attaching a leafy circle to a trunk. Image 4 shows one way to attach a leafy circle to a tree trunk. First, I stuck the middle of a single leaf onto the trunk, held in place with a stick. Then I laid the leafy circle on top of that single leaf. Then I fastened it into place by putting a 3-leaf plant onto the center of the leaf that's attached to the trunk; the 3-leaf plant traps the circle into place.

Image 4: Attaching a leafy circle to a trunk

Weaving Small Leaves. Image 5.1 shows a tree made from weaving small leaves together. This tree uses 8 small leaves woven into a circle, with an extra layer of leaves hanging down (Image 5.2). To fasten the leaves to the rest of the tree, there is a 1x3 green brick at the top of the trunk, on the inside of the tree. The completed leaf circle is draped over the 1x3 brick. Then another small leaf is attached to the top of the 1x3 brick by using a couple round 1x1 plates; that leaf holds the rest of the tree in place.

Image 5.1: Tree made with small woven leaves

Image 5.2: Weaving small leaves together

Small bushes. You can also use small woven leaves to make little bushes. My grandparents had a row of bushes just like these in front of their house. Their LEGO® counterparts are made with 8 small leaves woven into a circle. Then stick a green 1x1 cone into the stud at the top of every other small leaf. Stick one more small leaf onto another green cone, and then push that cone through the center holes on top of the bush (between the four other green cones). The cone will pop into place and hold the top leaf in place.
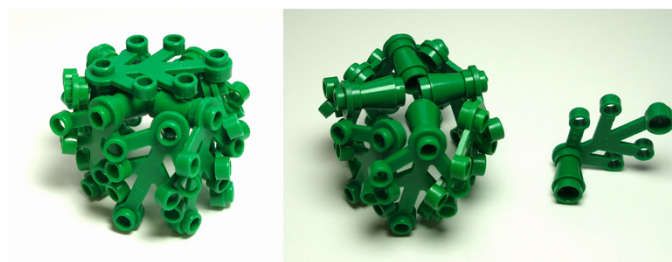
Image 6: Small bushes, made from small woven leaves

Other Ideas. There are many different possibilities for using leaf-weaving techniques. Slightly changing the way leaves are woven together can result in many different shapes.

For example, the boxy-shaped tree in Image 7.1 is made with a different weaving pattern. Instead of adding each leaf to the woven circle in the exact same way (as shown in Image 3.4), this one alternates which branch will go on top. You can see this in Image 7.2, where both of the light green B branches go on top of the neighboring dark green B branches. Also, only branches A and B are woven, and branches C and D are left loose. If you do this with 12 leaves in a row and then connect the ends together, it will make a leafy circle shaped kind of a like a crown.

42

In Image 7.3 you can see one way to attach this leafy crown to the tree. The green bits sticking on top of the trunk are 5 leaves woven together (as seen in Image 3.4). This leafy piece is stuck onto the trunk with a small stick. Then you can place the leafy crown over the leaves on the pole and push down a little bit. The support leaves will bend and then snap back and hold the crown in place.

Image 7.1: Boxy tree
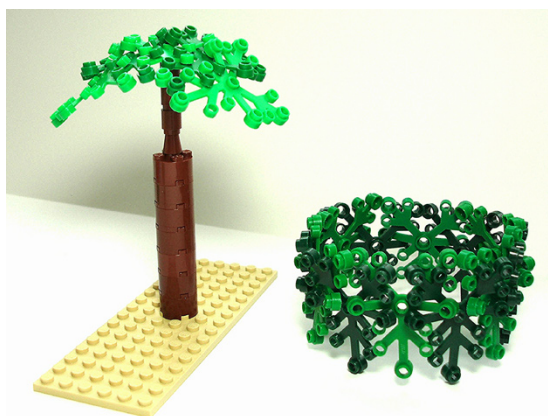
Image 7.2: Weaving technique for a boxy tree

Image 7.3: Attaching leafy circle to the trunk

Image 8 shows a few shrubby little plants made with woven leaves. The one on the left consists of six leaves woven together, then stuck onto a stick coming out of the top of the trunk. The one on the right is five leaves, stuck over a small LEGO® evergreen tree. The plants are a bit messy, but then real plants are not always neat and tidy.
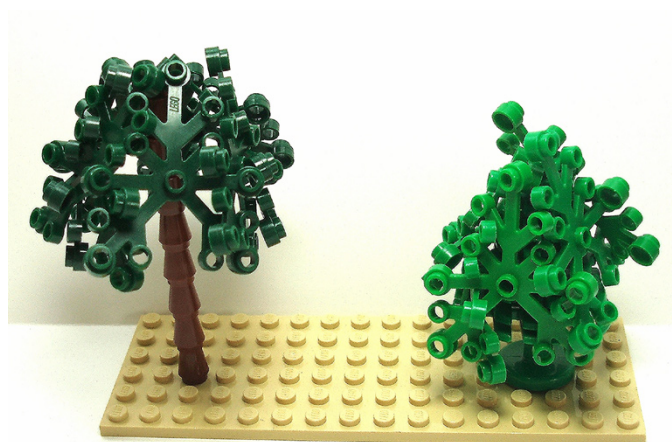
Image 8: Shrubby Little Bits

Does weaving damage the leaves? One of the most common questions I have been asked about this technique is if weaving the leaves together will damage them. I don't think so, but then I have not left my woven leaves together for longer than a few weeks or so. When I take my trees apart, the branches are bent a bit out of alignment. But I then stack them, one on top of each other, and leave them that way for storage. That tends to straighten them out again. The leaves are made out of a fairly flexible plastic, which makes them quite resilient.

I hope this tutorial provides inspiration for some creative tree-building. I have included several resources below which will provide more information on leaf-weaving and other tree-building techniques.

Resources

Tree Techniques Set on flickr: http://www.flickr.com/photos/eilonwy77/sets/72157629804759804/

Leaf-Weaving Examples Gallery on flickr: http://www.flickr.com/photos/eilonwy77/galleries/72157632892361494/

Classic-Castle's How-To Articles (including several tree tutorials): http://classic-castle.com/howto/articles.html

LEGO® Arboretum Group on flickr: http://www.flickr.com/groups/lego_arboretum/
#

Mosaic Bricks

An introduction to Robotics with LEGO® MINDSTORMS (XIII)

Programming the NXT with LabVIEW

By Koldo Olaskoaga

FTC is here

This year the first FTC[1] tournament is celebrated in Spain. In this premiere, which has an international character, teams from Barcelona, Jaén, Gipuzkoa, Madrid and Malaga will compete alongside teams from Russia, Holland and the USA (via tele-competition). The tournament will take place in Tarragona on march 16 and 17.
The hardware used in FTC is a combination of LEGO® MINDSTORMS and TETRIX[2]. The robot must be controlled by the NXT (part of the time autonomously and part of the time remote controlled) and can be programmed using LabVIEW for LEGO MINDSTORMS o RobotC.
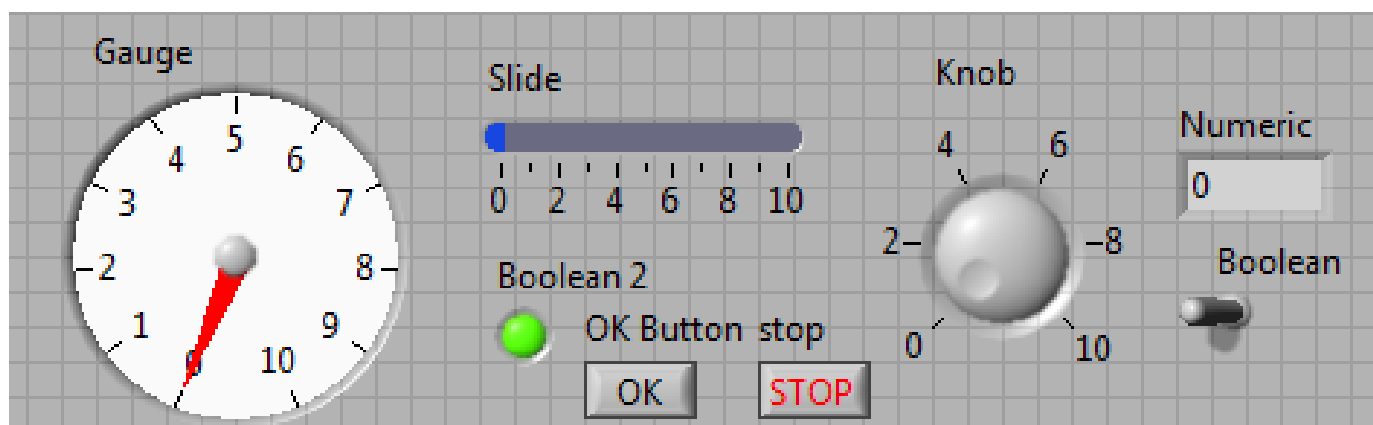
LabVIEW

LabVIEW is a plataforma and environment for designing systems. NXT-G has been developed in LabVIEW. It uses a visual programming language.
It is a commercial programming environment that is quite intuitive. This article is a continuation of the one from the previous edition of HBM. In this one I would like to show you the basics of programming with LabVIEW, using the same project as a reference. I am not going to repeat everything that was said in the first article, but rather show how to develop it in LabVIEW.

Basic program editing

A LabVIEW program consists of two related spaces: the front panel and the block diagram (this last one contains the program itself). The front panel can be used to monitor sensors, motors, show values from internal calculations or even modify parameters of the program. Would you like to build a small greenhouse and control it with the NXT? he front panel can be the control panel for the system. In the following image you can see some of the available controls.

The front panel can also be very useful in educational projects which involve data collection and representation. This is something the educational version of NXT-G already includes, although the potential of LabVIEW is much bigger. In the following image you can see an example that shows the front panel in a program that analyses the discharge process of an NXT battery[3].
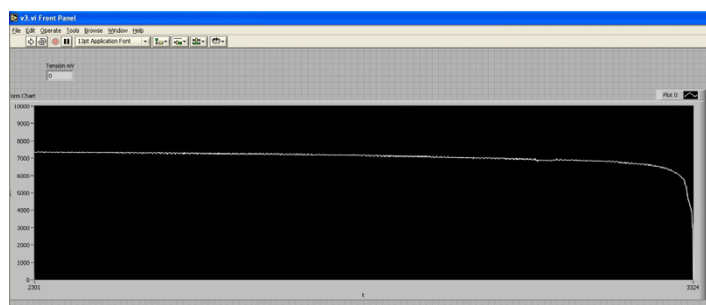
[1] FTC: http://goo.gl/WNonY
[2] TETRIX: http://www.tetrixrobotics.com/
[3] See the complete project at http://goo.gl/pFUoG

The second workspace is the block diagram in which the program that defines the behaviour of the robot is developed. If what you want to create is a program that runs on the NXT, it will be the only space you use.

In the following image you can see a fragment of the program, that shows the information screen and starting instructions.

The programming blocks are taken from the functions palette and are connected by means of wires that define the program flow. Each block is configured with a set of default values that need to be modified as needed. In the previous image the numerical values in blue represent the line on which the text should be displayed on the screen of the NXT.
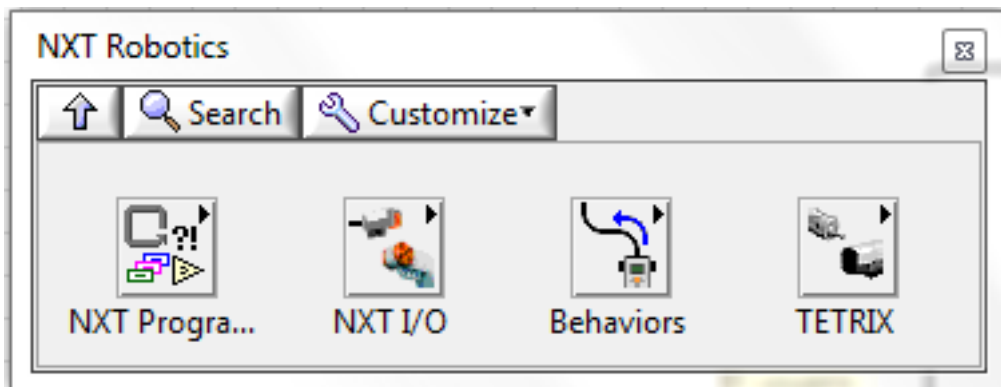
Programs can be run both on the NXT and on the PC. In the second case all of the potential of LabVIEW can be used, controlling the NXT resources from the PC.

Control structures

LabVIEW offers several structures as can be seen in the following image. If you look for parallels with NXT-G, the While loop corresponds to the Loop block and the Case structure to the Switch.

In addition to these two structures you can also use the For Loop, common n other programming languages, but without a direct equivalence in NXT-G and Stacked Sequence, a LabVIEW specific structure.
Lets first see an example of how the While Loop has been used in this project. This structure is the most used one in the program, as it is necessary in all the cases where a fragment of the program needs to be repeated a specific number of times. The program exits the loop the moment the corresponding condition is met. In the following image you can see a loop that will repeat itself indefinitely. The red circle on the right shows the loop will end when it receives a "True" signal, something that will never happen in this case.

45
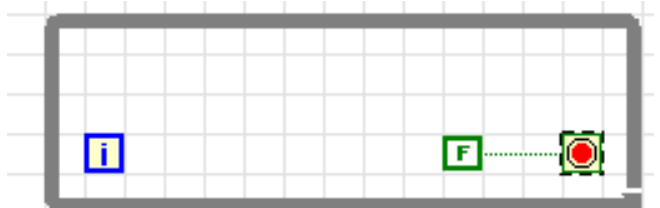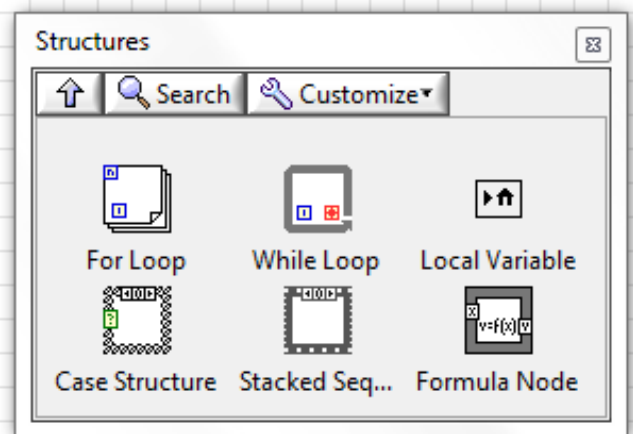
One of the tasks for which it has been used is to wait for one of the keys to be pressed. As a matter of fact, it needs to wait for one of the three contact sensor or the orange NXT button to be pressed. To this end the loop on the right has been used.

In this loop, the program reads the 4 sensors time after time. To determine if any of them has been pressed it uses the boolean OR, so that if any of the sensors is pressed the result of the operation will be "true" and the program will move on. In the following image you can see the connectors that are available on the Read Sensor block.

Read Touch (Pressed)
[Touch_Pressed.vi]
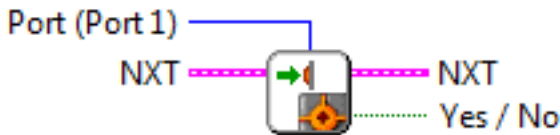
The condition that must be met can also be represented independently at the start of the program, just like is done to end one of the phases of the program by means of the orange NXT button.

For taking decisions the Case structure has been used, equivalent to the NXT-G Switch. Among other things it has been used to reproduce a sound and switch on the corresponding light to each key. This has been done using a new programming block (a new SubVI as it is called LabVIEW). This block has a numeric value between 1 and 3 as an entry and looks as follows when opened:
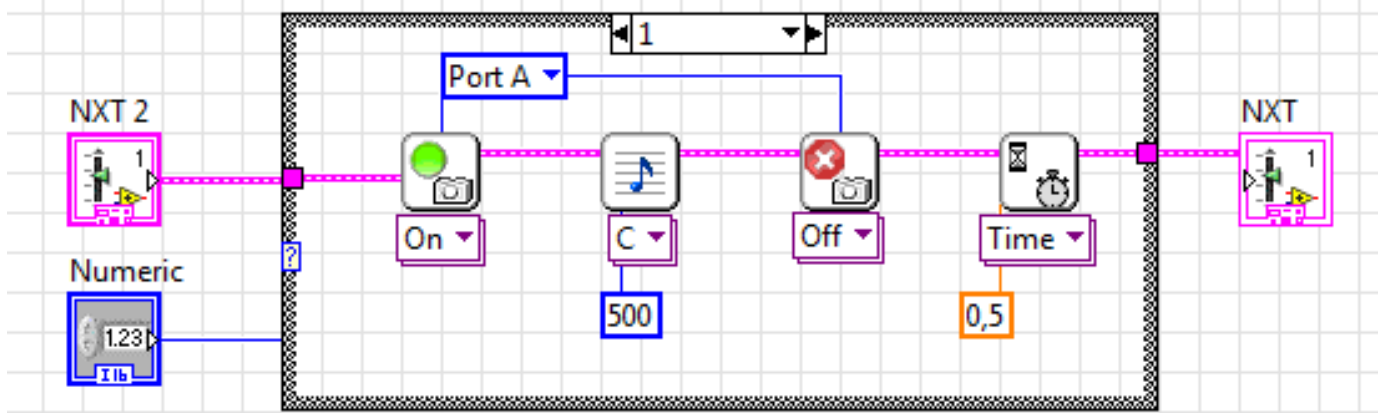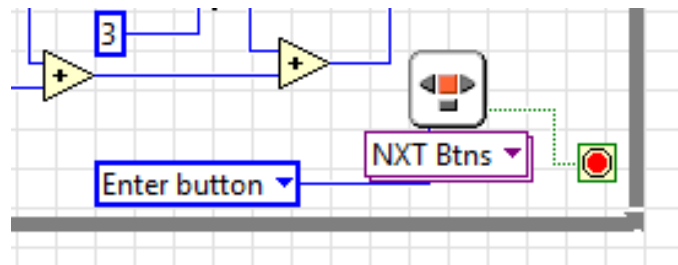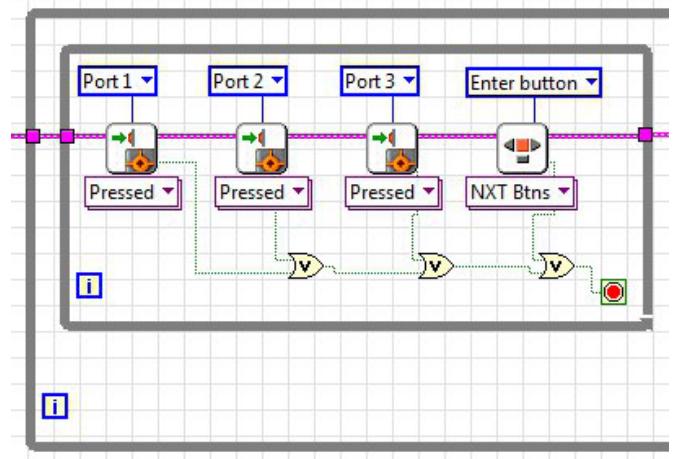
The morphology of this structure is similar to the switch block when the check box for flat view is not selected . In this case you can see the code corresponding to the input value 1. The third structure used in the program has been the For Loop. One application is to generate the random playback sequence. To this end it has been necessary to generate many random values between 1 and 3 as the number representing the +2 level. You can see the input value in the upper left corner.

Although in LabVIEW the sequence can be stored in a matrix, the same subterfuge as in NXT-G has been used to convert the sequence in a numeric value, multiplying the first value by 1, the second by 10... and adding them all. For this purpose the exponential function 10x is used to obtain the ordinary number (with values between 0 and n-1) corresponding to the current loop from the terminal (i). Although it has not been

46
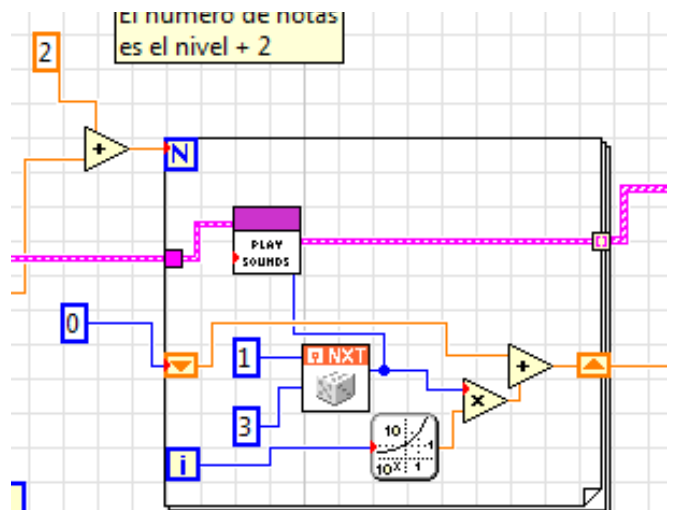
mentioned before, the While Loop structure also allows the use of the number of loops from the terminal (i).

Data and operators

In LabVIEW, data is transported by wires in the same way as in NXT-G. The operations are carried out when all the necessary data is available.

LabVIEW has an important number of operators for data of different types: numerical, boolean, text chains, matrices, etc. In the operation that appears in the following image, the True/False input from the sensor is converted into the numerical value 1/0 before using the arithmetic addition and multiplication operators to determine which sensor has been pressed.
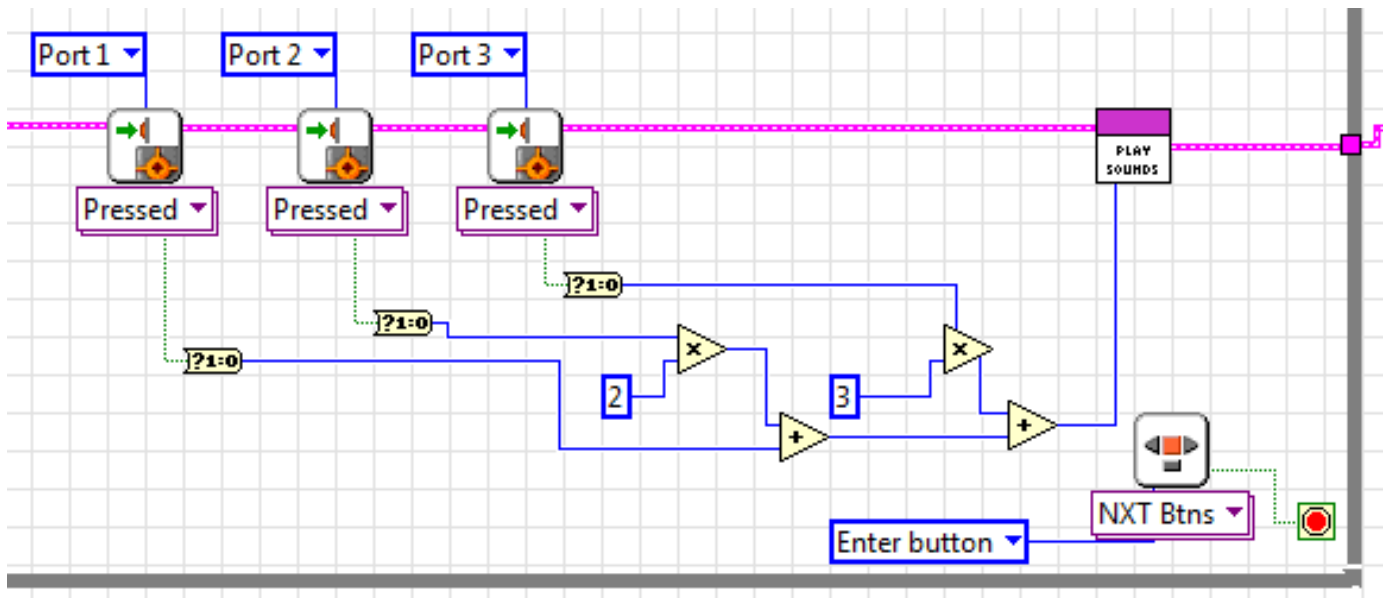
In addition to these operators in graphic mode, as has been done in this project, it is also possible to introduce mathematical expressions through the Formula Node structure. This structure evaluates mathematical formulas and expressions in a format that is similar to C.

Contrary to what is done in NXT-G, in this program no variables have been created to store data and from which to read when necessary. For this purpose the wires have been used. An example can be seen in the For Loop of the previous point.
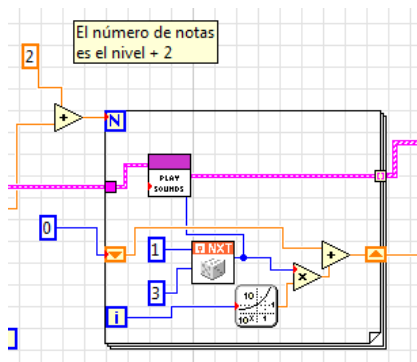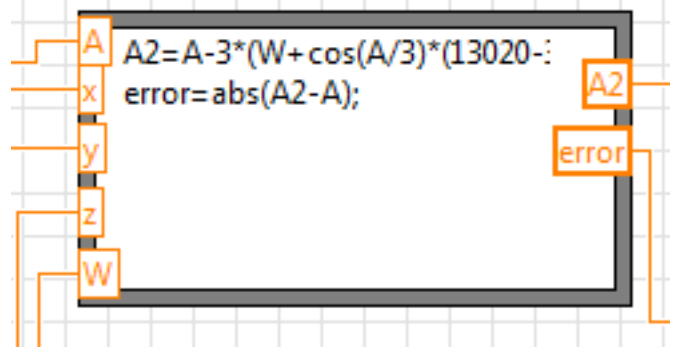
The two rectangles with orange triangles are the elements that allow the conversion of an exit value of one of the iterations of the structure to be used as en entry for the next iteration. In the first iteration the value has been initialised to 0 and in each subsequent iteration the result of the previous operation has been added as previously explained. As can be seen, the exit of the random number block is connected to the SubVI Play Sounds in order to reproduce the corresponding sound.

Final remarks

LabVIEW is a commercial software with a cost of about €150 for an individual license and better prices for several workstations or licences for schools. This is something that limits its use to the educational environment.
If what we want to do is monitor experiments or controlling a system designed with LEGO® MINDSTORMS, the front panel and its capability to process data offer a powerful and interesting tool.
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Robótica Educativa y Recreativa

Modular Integrated Landscaping System (IV)

By Legotron (A. Bellón)

In this article there will be a deeper development of the multilevel elements to build higher hills and mountains, the rules of which were briefly described in the previous article. Furthermore, we will see the last elements of the MILS rules that were pending to be shown: the Transition Terrain Modules (TTM). The last part of the article will describe our effort to build 3 MILS dioramas at the last HispaBrick Magazine Event 2012 and some reflections.

Multilevel hills and mountains (expansion)

As was written in the last article, the height of the hills and mountains could be more than the height specified for a single module. In order to achieve this, we defined the multilevel system, that was intended to create larger mountains by placing some modules with their base surface at the same height as the top borders of the surrounding hills or mountains. It is not mandatory that builders choose all the modules of the same type. The lower modules can be of hill type and the upper modules can be mountains, or the mountain modules can be placed on the lower part with plain modules in the upper part, and of course there is always the option to make a multilevel element with modules of an single type.

We can see this with an easy example: a corner of a diorama with a multilevel element with a mountain module at the top (level 1) and three hill modules at the base (level 0). As the higher module is placed just in the corner, the other three modules are placed forming an 'L'. The three hill modules of the base (level 0) are composed of 2 modules with a full profile side facing the hole in the corner of the diorama, on each side of the 'L', and one corner module to join the two modules in the correct way to have a consistent terrain. In the resulting gap, the mountain module is placed on some supports, so that it has the same height at its surface as the highest borders of the hill modules. These supports must be 4 bricks + 2 plates + 1 tile high to get the correct height. The supports can be made in many ways, there isn't any specific shape, but it is recommended to have good stability using X shaped surfaces. The mountain module, in this case, is intended to be a corner shape module, in order to have a consistent landscape without gaps. In this way you can have a small multilevel element with MILS modules in a diorama.

This example could also be done with a single BTM module instead of the mountain module, like a small tableland. If we decide to build the multilevel element in the middle of the diorama, with 2 modules at the top level (Level 1), we will need at least 10 modules of the type selected to form the base (Level 0) and of course enough supports to hold the upper modules.

This system also can be used to build cliffs, with a row of mountain modules dividing the lower part of the diorama,
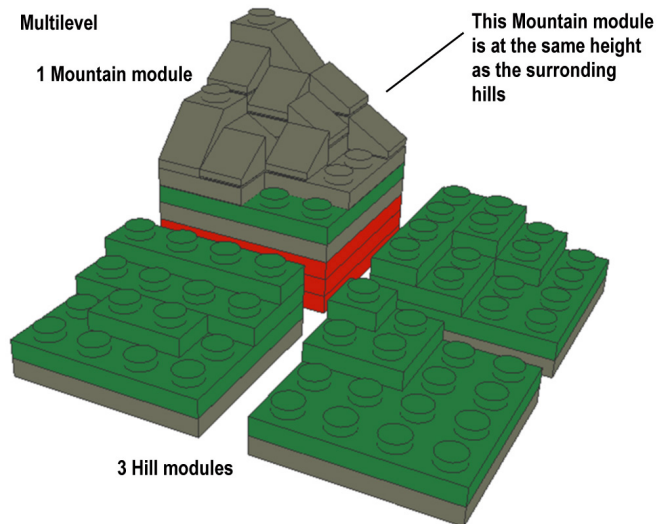
with modules placed on the table, and the top elements with modules placed on any kind of support of 15 bricks + 2 plates + 1 tile high. A simple pile of bricks is not enough, this type of supports needs more contact surface, as the higher it is, the more likely it is to fall down. Is better to have several supports instead of one to have a better distribution of the weight and to avoid damage to the baseplates of the modules.

The MILS system needs a lot of modules to build the base, or lower part of the multilevel items, and many of them must contain FULL profile sides to have a continuous landscape. These are some of the reason why they have a very high piece count, so they are really expensive to build.

This technique could be used 2, 3 or more times in order to get more levels, to form great and very high mountains, but

Support: 1 brick + 1 tile
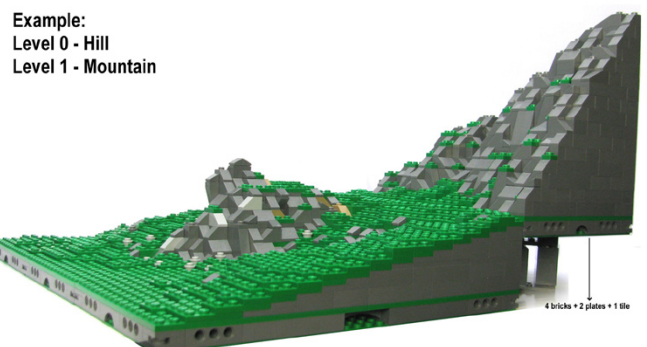
this type of construction is very difficult and complex to carry out without a careful planning, and due to the high number of modules they may be unstable. So it is recommended to use another type of construction, with less elements and stronger foundations, with compatible sides with the MILS system, or using transition elements, that we are going to describe in the next point.

TTM (Transition terrain module)

This is the last group of elements to be described in this series of articles. These elements don't need to be 32x32 studs. These elements are often used as transition parts between MILS modules and other elements which have no compatible sides or which due to different height or dimensions cannot otherwise be used with the MILS modules. The form, height or size of these TTM items depends on what the builder needs to join non-MILS elements with other MILS modules in the diorama.

The most common example of these elements can be seen when a single baseplate is placed in a MILS diorama. The baseplate element of the landscape has a different height from that on the surface of the MILS modules. You can place the baseplate on several supports of 1 brick + 1 tile to have them at the same height, but this is not always possible. Another way, using TTM elements can be carried out by adding some small baseplates with one side with the same height of the aforementioned baseplate, and the other side with the elevation of the MILS part of the diorama. In other cases, a builder who wants to include a 48x48 element in the middle of a diorama, surrounded by MILS modules, will have gaps. The gaps are different from the standard 32x32 studs

of the MILS modules, so there is a need of smaller elements like 16x8 baseplates, to be placed in the gaps between the MILS modules and the 48x48 baseplate. These elements are constructed when they are needed, so there are no specific features or sizes for them, just the surface needed to cover all the gaps and get a homogenous terrain.

This type of element is also very useful to include different building techniques with MILS dioramas. For example, a road built with a SNOT (Studs not on top) technique with a thickness of 1 brick can be placed on a baseplate with two more plates to have the same height of a road module. So it is possible to combine SNOT roads with MILS modules with roads. Furthermore, these elements do not need to be simple baseplates between MILS modules and other types of landscape elements, they can be used to add some special features in MILS dioramas. For example they can be used to reproduce a vertical ramp of 60 bricks height in 8 studs to divide two areas of the diorama. And of course, if there is no place to add more 32x32 modules you can always fill the gap with these elements. Se we can think of these elements as complements to get more connection possibilities in our MILS dioramas, or to fill the gaps that appear when we want to include some other landscape elements of sizes different from 32x32 studs.

Construction of MILS dioramas at the HispaBrick Magazine® Event 2012

We made 3 different dioramas with MILS modules at our HispaBrick Magazine Event 2012, with modules built by different participants.

The first diorama, which had been planned at previous events, was based on the Battle of Hoth of the Star Wars™ saga. It contained 23 modules, with snow terrain, the trench and the shield generator. The main effort in this diorama was to build as many basic modules as possible to have enough space to place all the war machines, troops and elements of the diorama. The diorama also contained some BTMs with small reliefs, or a crashed snowspeeder, and some CTMs with the trench. The final result was a very nice diorama to depict the battle. Furthermore, we were able to include a white baseplate placed over supports to fill the gap of some missing modules, and the result was perfect. This is a diorama we can build in many sizes and configurations, depending on the available space and modules. For future events we want to add the hill with the Echo base, with the main door entrance, so we hope we can build it for the next HispaBrick Magazine Event.

The diorama of Hobbiton was built around the new LEGO® set 79003 An Unexpected Gathering. Bilbo's house was placed

49
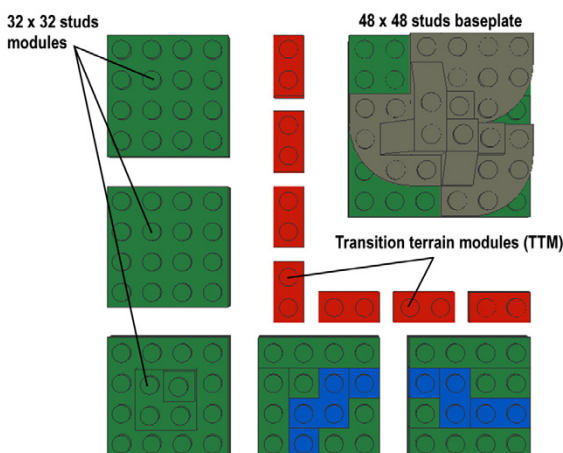
directly over some basic modules. Then we placed some other modules containing a road and a river to form a small diorama of a typical hobbit village. We prepared some decorative elements for this diorama, like trees, a small orchard and farmland. These type of things were a nice addition, because they were very easy to place on the diorama and had a great visual impact. One of the things we realized when we built the diorama was that the final aspect of the road with the irregular borders was far better than the roads with straight borders. This is a detail we have to work on in our road modules, adding more irregular borders to create a more realistic look. We also included a little river mouth, although we didn't have enough modules to complete the bank of the lake. But it was a nice addition too, and the lack of additional lake elements was not too bad.

The castle diorama was improvised. We had prepared many modules but we didn't plan any specific diorama. Once we had the place of the diorama assigned, we gathered all the modules and we began to move them as if they were the pieces of a puzzle. We needed a large plain area to place the castle, so all the basic modules were used for that purpose. We used 4 straight river modules and another river mouth on one side of the diorama in order to leave the middle of the diorama for the castle. In one corner we placed the shore modules to form a very irregular coastline, with the river mouth. The hill and mountain modules were placed on the opposite side, in a narrow fringe because we needed all the space in the middle to put the castle, so we could not built a great hill or mountain. One of the advantages of the modular system was that we were able to adapt our diorama to the available space, as we had to use the last available place in the exhibition. Unfortunately, at that stage we didn't have any decorative elements like trees or shrubs left, so the diorama seemed to be empty. Nevertheless this was a great opportunity to realize how useful the MILS modular system could be to build an improvised diorama in only 20 minutes. Contrary to the diorama of Hobbiton, the look of the roads in this diorama was a little ugly, because the borders of the road were straight. So these modules will need a rebuilding process to get a more realistic appearance.

After building these dioramas we could draw some conclusions. We had no problem to replace some missing or forgotten modules, we just replace them with another one of the same type and the building process continued without any problem. The corner identification system was a great advantage in the building and disassembling process. Each builder could identify his own modules very fast. The comprehension of the MILS rules and the different types of modules,except for the absence of certain types of modules, was perfect, and we had no problems to connect the modules of different builders. There were some problems with the ratio of module types, because we need more space to put large structures and buildings over the surface of the diorama, and we didn't have enough plain modules. On the other hand we had plenty of modules with hills or small reliefs, so we need to build more plain modules to display a city or a big castle. We had a good quantity of road and river modules, but in the case of the river modules we had too many straight elements and only one curved section, that we couldn't use. The opposite happened with the roads, we had more curved sections than straight ones, so we couldn´t make a decent road between the castle and shore. One type of module that could be very useful in dioramas with villages and roads is a T junction, which allows you to have several roads in the same diorama. Another key factor with MILS modules are the curved sections of the roads and rivers. The MILS rules say that a single curved element of a river or road is required to be 90 degree curve. The concatenation of two of these modules to form a zigzag takes up a lot of space, so this type of landscape feature needs careful planning. Other landscape features like the hill and mountain modules were used in the rear part of the castle in separate groups to fill the gaps in the diorama, so nothing can be said about these elements, as they were not used to their full potential. One final, but not less important detail was the shortage of trees or other small decorative elements. They have a huge visual impact, and without them our dioramas maybe give the impression of being empty. We need to make an effort to bring along more trees, plants or small things to put on the dioramas.
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MILS Castle diorama

MILS Hobbiton diorama

MILS Hoth diorama

LDraw Tutorial (XIV)

MILS with BlueBrick (III)

By Jetro

In the second part of this article on MILS with BlueBrick (in HBM014) I explained how to create connection points in those places where the continuity of the diorama through various modules requires special attention. Plain modules or with a border at base level and without special characteristics like rivers or roads that determine how they relate to the surrounding modules don't need special indications. I explained how to create these points, modifying the descriptive XML file of the module to incorporate connection points in the module types that had been seen then: roads, paths and tracks on one side and rivers on the other. These modules are similar in that they follow the MILS standard 100% and these characteristics are always halfway one or more of the sides of the module.

However, there are other types of modules that have different characteristics. An example of these are coast modules. In these modules, where land and water meet, exactly half a side is occupied by land and the other half by sea. This symmetry allows us to apply the same criterion as in the case of roads and rivers and place the connection point in the centre of the side.

In the MILS article of this issue we have seen two types of modules with an elevated profile: hills and mountains. In these modules the diversity of profiles is much greater, so we will need to modify the may to apply connection points.

Why include connection points?

As has been mentioned in the previous article in this series, connection points are a characteristic of BlueBrick that allow you to join elements with similar characteristics in an easy way. After placing a first element, its default connection point - as specified in the XML file - is marked. If this is not the point you want to connect to you simply need to press "Enter" until the connection point of your choice is selected. Now, to add the next module you only need to click on its icon in the parts library. Not only will the part be added, but it will be connected with a possible connection point. In the case of a road that would be one of its ends. If you wish to change the side that is connected, simply press the space bar.

In addition to ease of use, the fact that BlueBrick only allows possible connections can be a big advantage when organising a MILS diorama. Seen from above, a flat module and another one with a hill may look virtually identical. Adding connection points for different types of terrain is a comfortable way of documenting the elevation of the edges of the module.

Connection points for hills and mountains

Looking back at the explanations regarding hills and mountains you can see there are three basic types of elevation: short, long and full (elevated along the whole extension) and these can be combined in different ways. To differentiate between types of profile the following configuration should be followed:

Long: since this elevation takes up the entire length of a side a single connection point will suffice. This does however not indicate the direction of the inclination of the hill or mountain, so a contrasting coloured dot should be included to indicate the highest point. In hills which are predominantly green this could be DBG and in mountains it could be the other way round. You can of course also use a more distinctive colour like red.

Short: takes up half of the side of a module, so the location of the connection point should be at 8 studs from the corner (exactly in the middle of half a side). Since a short profile can be combined with another short one on the same side this allows for indicating a second short profile. In the case of two short profiles, these can be placed with the tops in the corners or in the centre of the side, so in order to indicate the highest point, the top should again be highlighted in a distinctive colour.

Full: this profile has no inclination so no "highest point" exists. Since it can take up a full side (32 studs) as well as half a side and combine with a short profile, the location of the connection point should be at 8 studs from the corner, so 2 connection points fit on one side. In order to distinguish this point from a long or short profile, the point must be of a different colour.

The following table contains the connection points for placing a single point in the centre (in bold) or at a quarter of the length of the side of a MILS module.

	X	Y	Angle
A	**0**	**-16**	**-90**
A1	-8	-16	-90
A2	8	-16	-90
B	**16**	**0**	**0**
B1	16	-8	0
B2	16	8	0
C	**0**	**16**	**90**
C1	8	16	90
C2	-8	16	90
D	**-16**	**0**	**180**
D1	-16	-8	180
D2	-16	8	180

Of course the angle to the previous and following connection points as well as the preferred order of the connection points must be adapted according to the number of actual points included in the descriptive XML file of the module.
#
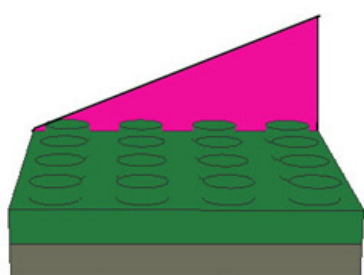
Long profile
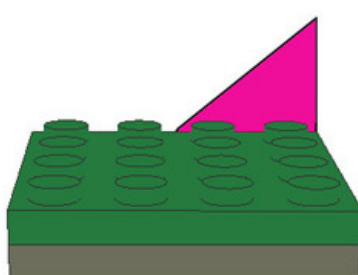
Short profile
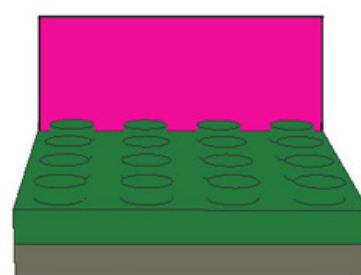
Full profile
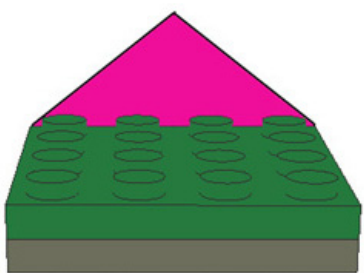
Double short profile
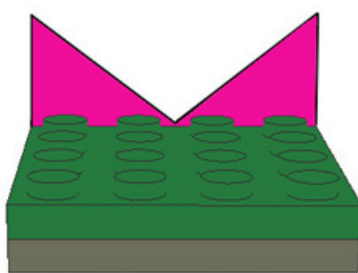
Double short profile
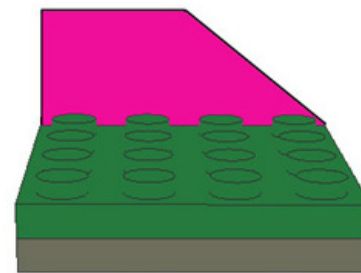
Full & short profile

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Megan´s LEGO® Book Adventure

By Katie Walker

Pictures by Megan Rothrock

Longtime AFOL and former LEGO® Product Designer Megan Rothrock (megs/megzter) is the author of The LEGO Adventure Book. Perhaps you have seen this exciting hardcover book at your local book store, or met her and some of the book's featured builders at fan events. So just how did it all happen? We tracked down Megan to find out. The Adventure begins!

How did The LEGO Adventure Book come to be?

Well it's a crazy world. I never planned to write a book. I was approached by No Starch Press in Fall 2011. They are book publishers who had seen my work for Brick Journal and wanted to know if I would be interested in writing a LEGO book. The first meeting went very well. They wanted to work with me, with only one catch: they wanted to have a book out for the following Christmas Season. This gave me only a little over half a year to write a 200-page book I hadn't even thought of yet! I decided to put all of my other projects on hold and come up with a concept for them.

Pretty much from the moment they approached me, I knew what I wanted to do. As a kid I was one of the many current AFOLs inspired by the great LEGO 6000 Idea Book from the early 80's. I wanted to bring the excitement and energy of that book to a whole new generation! My mission was that no matter where you come from, whether you are an AFOL, TFOL, or haven't picked up a LEGO brick since you were a kid, or maybe ever, after flipping through my book you would be inspired to try and build something with LEGO bricks!

The LEGO 6000 Idea Book followed two LEGO minifigures as they journey to different LEGO themes, though just town, space and castle existed at the time. I wanted to echo this travelogue element in my book. Being a bit of a Sci-Fi geek, including a little time travel in the book was a given. I also knew the original book was a collaboration of the entire LEGO design team of the time, so I thought it was important that the focus of this new book should not be just me. With so many talented AFOLs around the world (who inspire us all on a daily basis) I felt that some of them should also be able to share their great work with the readers.

In order to have the book produced for the following Christmas Season, the publishers needed the completed manuscript at the latest by the beginning of July! No Starch was impressed by the rough layouts in my proposal and they hired me to do the final layout. I was happy with that since there were so many building breakdowns to tackle and I knew how I wanted them presented. By the time I created the proposal it was into the new year, and I had less than six months to finish writing, designing and laying out the book. At this point I only had about half the builders I needed!

Since it was such a short deadline, I had actually started working on the book before the agreement was finalized and signed. This was a risk as I might have been carrying out a lot of work for no reward, but I knew that anyone I wanted to be in it needed as much time as they could get to create models. On paper the concept seemed fairly straightforward, but like any design project there were a lot of twists, turns and lessons learned along the way.

The first block to fit into place was 'Megs'. I've been using my sig-fig 'Megs' for years at events and online. The hair piece was actually sculpted from my real hair by the talented LEGO Master Sculptor Gitte Thorsen when I was working for LEGO Creator; it's a very special element to me. Megs would be the traveler around whom the rest of the book's narrative would be built.

Then I had to find the featured builders. This was its own adventure. I did have a few of them in mind from the start, but for the most part it was quite challenging finding the right themes to go in the book, and then finding builders in those themes with excellent model-building and photography skills. The models needed to be iconic, stable, buildable and most importantly, everyone had hardly any time and had to build fast! It took weeks of trawling Flickr, MOCPages, Brickshelf and everything in between to find them.

I sent out some queries to the people I had found, some of the best builders in the fan community, and to my surprise everyone I approached said they were honored and would love to contribute! I was incredibly humbled by their enthusiastic reactions. So now that I had my awesome builders I had to ask them to take their models apart and try to clearly communicate to me how they had built them. Their first reactions were, "You want me to do what? Really?" If you have not done this before it can be quite challenging to share how you have built a model. I explained the importance of the breakdowns and they

Megan H. Rothrock

1

Internet nickname: megs/megzter
Profession: Toy Designer and Author
Nationality: American
Website: *www.flickr.com/photos/megzter/*

Thank you to all the wonderful and creative featured builders:

2 Craig Mandeville

3 Are J. Heiseldal

4 Moritz Nolting

5 Jon Hall

6 Pete Reid

7 Peter Morris

8 Mark Stafford

9 Aaron Andrews

10 Mike Psiaki
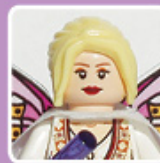
11 Katie Walker

12 Carl Greatrix

13 Sylvain Amacher

14 Daniel August Krentz

all did a brilliant job. After they sent me their breakdown photos I would then use them to build the models and maybe refine things further and create the final building breakdowns.

Coordinating thirteen people in three continents and at least six completely different time zones got a bit tricky. I was basically on call 24 hours a day, 7 days a week. Everyone was fantastic and understood that even with short deadlines, sometimes it might take a while for me to get back to them with answers to questions. They were also excellent in keeping the book top secret and not spoiling the surprise! Like a lot of the LEGO Community I only knew a few of them in real life, having met at LEGO events, and some I only knew by online nicknames. As they began to send in their profile information it was exciting

to learn not only what they did for a profession, but their real names too. Working with all of these bright and talented builders was a wonderful experience and I have made some great friends along the way!

I'm no stranger to design processes and had carried out a lot of editorial work with Brick Journal, so I felt optimistic and confident about jumping into the world of book publishing. I worked very closely with my editor to create a template for press and style guide. We had a lot of back and forth, adjusting layouts and making changes. Since the deadlines were so short, I became a layout artist machine. Almost every image in the book had to be processed, cleaned up, and sharpened. Adobe Photoshop became my best friend.

Timing was crucial with each phase. I needed to have not just the other builders' models but my own designed in time to write the narrative. This juggling of models and editorial production was both good and bad. It was good because it kept things moving along briskly, but bad because at the point where I had designed and laid out 140 pages, a decision was made by the publishers to shift the book's margins to create more room for the pictures. It was a huge challenge to keep moving forward and rework the old pages. There were a lot of sixteen-hour days to rework all of the spreads. It was challenging, but I think in the end it was a good decision!

When the book went on sale, the reviews from the AFOL community were absolutely brilliant. I am over the moon with the reaction! I was hoping that people would like it and it seems to have been embraced all around the globe. I am honored and humbled by this.

Now that the book is out, I find myself going to even more LEGO® Events then before. I have been teaming up with featured builders like Are J. Heiseldal and Moritz Nolting. We have brought our models from the book and have enjoyed meeting people and signing copies of the book. Since last November we have brought the book to the 50 Year Celebration of LEGO Norway in Oslo, Norway; LEGO Fan Welt in Cologne, Germany; and LEGOWorld Copenhagen in Copenhagen, Denmark. And there are many more events to come, like Art in Pieces in Portugal in June, Skaerbaek in Denmark in September, and LEGO World Netherlands in October!

A few years ago if you had told me I would write a published LEGO Book, I would have told you that you're nuts. It's been a wild ride. I just want to thank everyone out there who has supported The LEGO Adventure Book! This whole LEGO Adventure has been a great experience. I have had the opportunity to team up and collaborate with some really awesome and talented AFOLs and am looking forward to more exciting LEGO Adventures to come! Watch for news soon!

The LEGO Adventure Book Flickr group: http://www.flickr.com/groups/2021445@N23/
The LEGO Adventure Book Facebook page: http://www.facebook.com/LegoAdventureBook

Where to find it:

http://nostarch.com/legoadventure
http://www.amazon.com/The-LEGO-Adventure-Book-Vol/dp/1593274424/ref=sr_1_1?ie=UTF8&qid=1348564187&sr=8-1&keywords=lego+adventure+book
#

# Review: LEGO® Adventure Book: Cars, Castles, Dinosaurs & more

By Bruce N H

Pictures by Megan Rothrock

After talking to the author of the book, Bruce N H, admin for Classic-Castle as well as for a series of themed blogs (including TolkienBricks and MicroBricks) gives his personal opinion on Megan Rothrocks' fantastic book.

LEGO® Adventure Book: Cars, Castles, Dinosaurs &more, Megan Rothrock, 2013, No Starch Press

In the past few years there has been an explosion of LEGO-themed books, both from official sources and those authored by AFOLs. In my opinion, if you only wanted to buy one LEGO book from 2012, the LEGO Adventure Book: Cars, Castles, Dinosaurs & More is the one to get. Author Megan Rothrock is an active member of the community, and this book reflects that connection. Do you remember the LEGO Idea Books? Over the years LEGO released several of these booklets that went beyond the instruction sets found in any individual set. These books were a mix of instructions and just inspirational photos that could show you what you could build with enough time, practice, and, of course, more LEGO. Meg's book looks back to that tradition, and also celebrates the diverse building of AFOLs from all corners of the Legoverse.
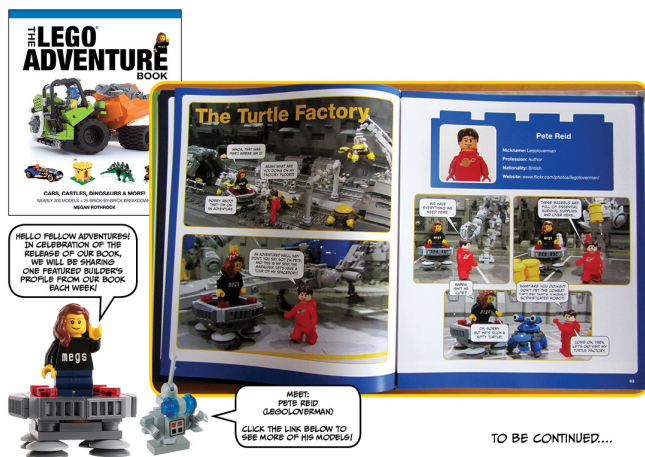
The book is mostly photos (all high quality). What text there is is primarily in comic book style, as Meg's sig-fig travels through the world of LEGO, meeting the sig-figs of other prominent builders and seeing their MOCs. In addition to Meg herself, featured builders come from all different areas of the LEGO community, both geographically and in terms of building theme: Craig Mandeville, Are J. Heiseldal, Moritz Nolting, Jon Hall, Pete Reid, Peter Morris, Mark Stafford, Aaron Andrews, Mike Psiaki, Katie Walker, Carl Greatrix, Sylvain Amacher and Daniel August Krentz.

The book is 200 pages long and contains 'nearly 200 example models from the world's best builders. There are about 25 MOC breakdowns. Not exactly step-by-step instructions as you would get in an official set, but detailed photos at different stages of construction so that an experienced builder could reproduce the model without too much difficulty. Subject matter covers the gamut, from a dinosaur, to a classic castle, to trains, cars and town buildings, to robots, mecha, steampunk and space ships. This is pretty much all at fig scale (except arguably Pete Reid's turtle-bots).

Anyway, I give this book my highest recommendation. The proper audience is just about anyone. The kid starting out will see this as inspiration of all the cool things you can build. The intermediate builder will enjoy reproducing the models. The long-time AFOL will love the celebration of the community, including popular builders and fan-created themes. Perhaps the best part of this book is the fact that it is listed on No Starch as 'Volume 1', implying we've got a whole series of these to come. Perhaps in upcoming books we'll get as-yet missing themes, like Western, or other building scales like micro and miniland. I suspect that even now Meg is contacting people to be involved in future volumes, so I'll be excited to see where this goes in the future.

Links:
Flickr de Meg: www.flickr.com/photos/megzter/
No Starch link for the book: nostarch.com/legoadventure
#
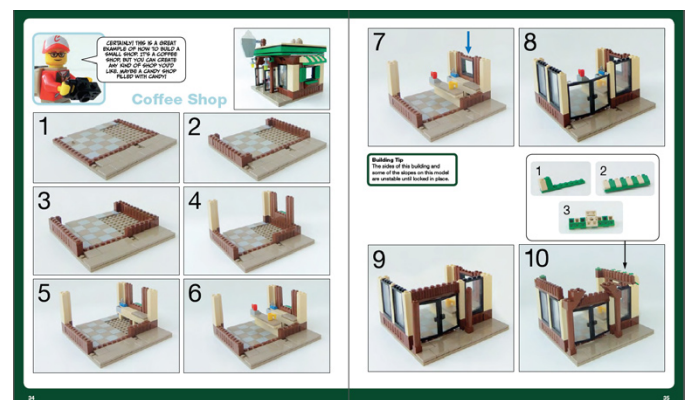
LEGO® Books

By lluisgib
Pictures by Dorling Kindersley

The LEGO® Book, by DK, €19.95, dk.com
LEGO® DC Universe Batman Visual Dictionary,
by DK, €16.95, dk.com
LEGO® Harry Potter Building the Magical World,
by DK, €16.95, dk.com
LEGO® STAR WARS™ Character Encyclopedia,
by DK, €16.95, dk.com
LEGO® STAR WARS™ The Visual Dictionary,
by DK, €16.95, dk.com
LEGO® Harry Potter Characters of the Magical World,
by DK, €16.95, dk.com
LEGO® STAR WARS™ Brickmaster, by DK, €19.95, dk.com

The publishing house Dorling Kindersley (DK) has an extensive catalogue of LEGO related books. Many of these books are dedicated almost exclusively to children like sticker books or short themed stories.

In addition, there is a series of books that fit in perfectly with the world of adult LEGO collectors and that do not only offer detailed information about different aspects of our hobby, but often include some kind of exclusive element (usually a minifig) which often has a positive impact on the decision to buy any of the books.

In this article we'll give an overview of the main themes that the DK catalogue offers adult fans of LEGO, leaving out the ones that are specifically targeted at children.

The LEGO Book

This is an essential book if you want to know more about the history of the LEGO Company and, in addition, have a general overview of the themes that have been released in the last decades.

The book was originally published in 2009, although in 2012 DK published a revised edition, which is the one I am reviewing, in which new themes such as LEGO Friends, Pirates of the Caribbean and Super-Heroes appear.

The book starts with an introduction to the history of the company. Next there are two interesting time lines. In one of them the author reviews the most important events in the 80 years of the LEGO history, mixing the appearance of toys with other more "corporate" events. In the other one we get a general overview of how LEGO elements have evolved, from the first bricks in 1949 (before the current system) to the new Friends minifigs.

After a short explanation of how LEGO bricks are made, how sets are designed and even how the logo has evolved, there are over 180 pages dedicated to all the Play-Themes since LEGO decided to divide its models by themes in 1978.
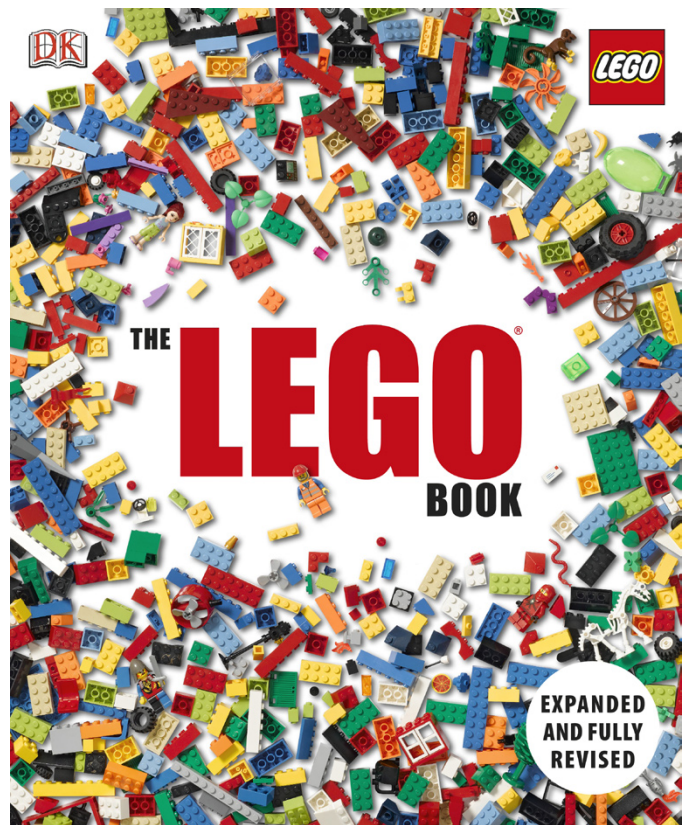
In all the Play-Themes there is a first part that details the most important (and recent) sets of the theme. For example, in CITY theme there are sets from the last 5-6 years. There is a short description of the set and some fun facts. Occasionally an older set turns up to activate the emotional sensors of the adult reader. To finish, after each main Play-Theme (CITY, Castle, Space...) there are a couple of pages that can make you green with envy. They are called SETS TO REMEMBER and they contain pictures of the boxes of some of the most important sets in the corresponding theme. Obviously this is the most recommended part of the book and it will satisfy the curiosity of the reader.

It is much appreciated that the last few pages are dedicated to the LEGO culture. They cover subjects like Master Builders, Brick Art and Fan Constructions.

The book is a complete guide to the history of LEGO and an overview to see the evolution of the LEGO product since 1978. The 2012 revision makes the book completely up to date. The book is an entertaining read and can be read bit by bit as there is no specific line to follow.

Visual Dictionaries

The Visual Dictionaries offer a detailed view of a specific subject, like STAR WARS™, Harry Potter™ or Super Héroes - BATMAN ™.

These books contain a complete overview of all the sets in the theme (up to the year of publication) and show their characteristics and peculiarities. I will talk about the book dedicated to Super Heroes - Batman, the last to appear on the market.

Before opening the book I found my first surprise: the exclusive minifig for this book. It is a reproduction of the "ELECTRO SUIT BATMAN". This figure is not only a collectible, but helps to solve puzzles in the LEGO BATMAN 2 video game.

Upon opening the book, the first thing you find is a time line of all the BATMAN sets, including both the sets that appeared under that name in 2007-2008 and the ones from 2012, included in the DC Universe Super Heroes theme. The list is very complete and even includes promotional polybags and the DC Universe sets that don't refer directly to the BATMAN comic books.

After this nice introduction we dive into the BATMAN world by means of a complete review of of all the LEGO® models and minifigs, including all variations and accessories of each character. In this case the review is done character by character. Different from other similar books, in this case there are also some comic strips with minifigs on a background drawing.

Then there are some pages that are dedicated to explaining how the LEGO Super Heros - BATMAN models are designed. The designers explain some of their secrets and there are even some pictures of prototypes and models that were never released. Finally the book takes a look at the LEGO Merchandising and the LEGO video games.
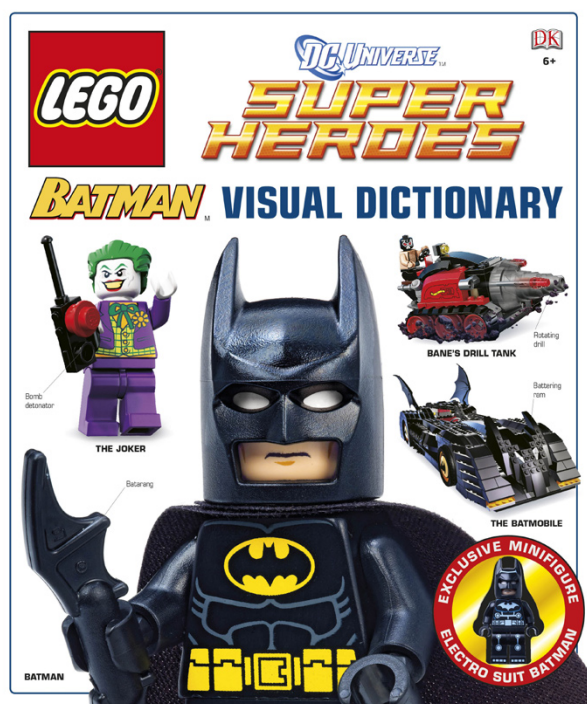
The Visual Dictionaries are a bible for the fans of a specific LEGO theme, or a nice read for those who like LEGO in general. In addition you get an exclusive minifig which is always a great excuse to get the book.

Character Encyclopedias

As the name indicates, these books present a complete guide of the minifigs that appear in a specific theme.

The first one to come out was STAR WARS™, which I will use for this review. Again the first thing we find is the exclusive minifig. In this case it is Han Solo Medal Ceremony, which goes with the Luke Skywalker Medal Ceremony minifig that comes with the STAR WARS™ Visual Dictionary. These two minifigs are reproductions of the characters that appear at the end of Episode IV - A New Hope, when Princess Leia gives them a medal for destroying the Death Star.

In this case the book goes straight to the point. Form the very first page you can explore the different characters (over 300). They are organised by Episode (from I to VI), Clone Wars and
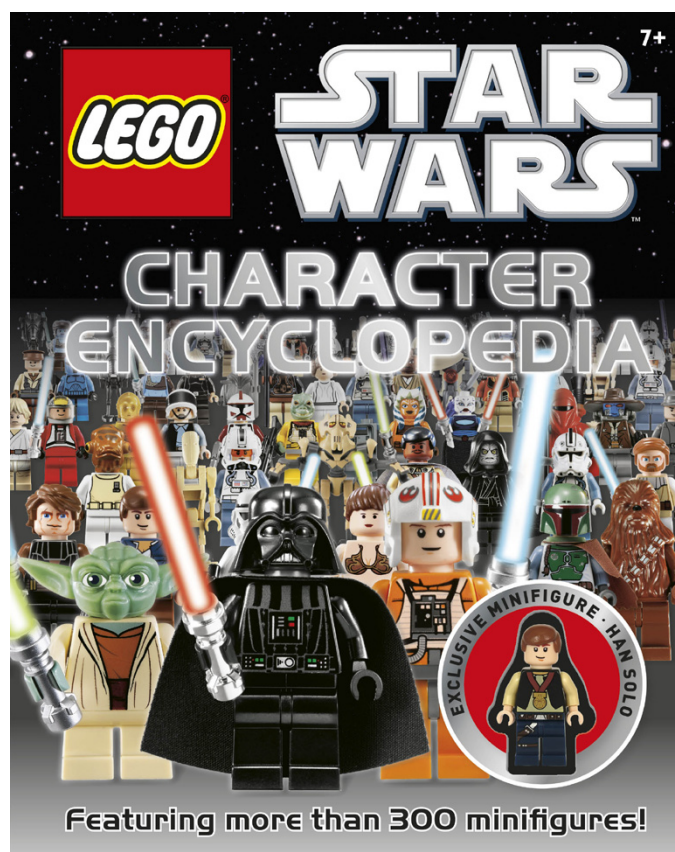
the Extended Universe. Each minifig comes with a description, characteristics (DATA FILE), some trivia (exclusivity or accessories) and the possible variations of the character.

The pictures of the minifigs are excellent and the information is very complete. Practically any doubt a fan might have about a minifig is resolved in this magnificent book.

In addition to STAR WARS™, there are also Character Encyclopedias for Harry Potter and NINJAGO.

59

BRICKMASTER

The BRICKMASTER books are closer to what could be called the LEGO DNA: building. Although the book is thick, it contains few pages as the front is in fact a box with LEGO® bricks. These bricks enable you to build 8 models (in groups of 2) and each book is dedicated to a different theme like CITY, Pirates, Castle or Ninjago.

BRICKMASTER STAR WARS™ was published in 2010 and contains 240 pieces and 2 minifigs: a Clone and a Droid. First there is a page with a kind of BIO of the characters. At the start of every ship there is also a short description sheet and at the end the main functions are listed. There are also some building tricks and trivia.

The book includes instructions for building four pairs of STAR WARS ships (one for each "side") and that allow you to create a story around them. Each pair of ships is focussed on a different scene. The Battle on Christophsys, Ice Encounter, Desert Raid and Forest Fight.

The two main models are a Republic Attack Shuttle and an Armored Assault Tank (AAT). They are nice and well reproduced models. These two models are mini scale reproductions of the 2009 minifig scale models from LEGO. The remaining models are minifig scale; a little more imaginative, but useful nevertheless.
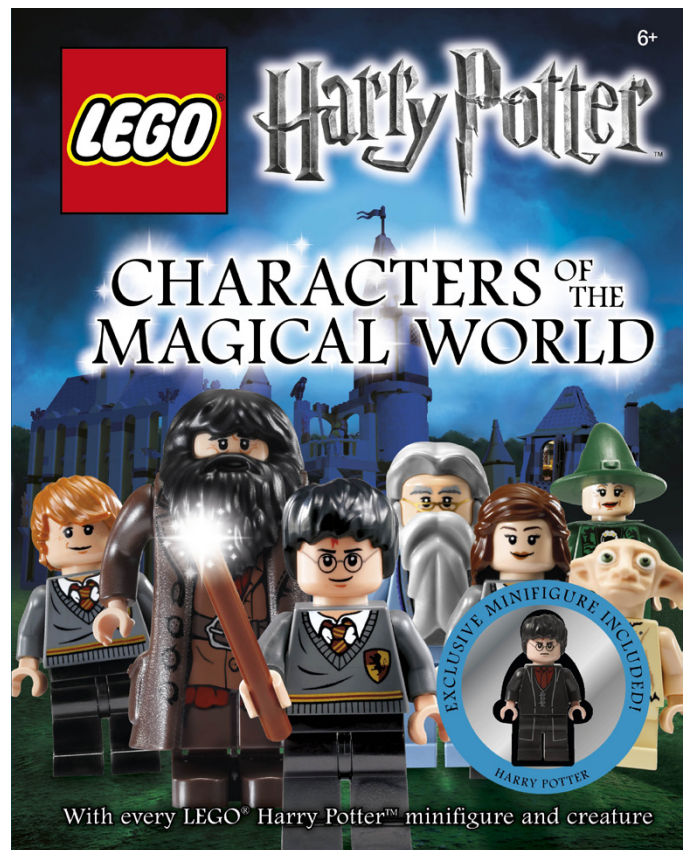
The interesting thing about these books for adult fans is that you can build the small ships that are exclusive to this book to complete your diorama. With the instructions, and keeping in mind that fans usually have many pieces, you will probably be able to reproduce all 8 models without much problem.

Dorling Kindersley has made a strong commitment to the LEGO licence and it has a wide and interesting range of books. I'm sure that any LEGO fan will find one or more books that fit in with their personal view of the hobby. During 2013 new titles will be published that will touch upon new aspects of our hobby and about which we will keep you informed in later issues. I especially recommend the book *LEGO Minifigure Year By Year: A Visual Chronicle* that will come out in October and in which I have had the honour to collaborate.

#

Review: 70005 Laval´s Royal Fighter

The legend begins

By car_mp

Pictures by LEGO® Iberia S.A.

When, a couple of months ago, the first leaked images of the new LEGO themes for 2013 started to appear, Legends of Chima was probably the one that generated most speculation. After seeing the first official images and reading the first official reports I though "this theme is not for me". Initially this theme may have been conceived to substitute NinjaGO, but the success this latter theme has had in some of the important markets for LEGO® have ensured it will last another season on the shelves of the toy stores.

it is clear that LEGO has put a lot of effort into Chima. A cartoon series that provides the historical background to the theme, two subthemes, some extremely detailed minifigs, new pieces, new colours, ... a declaration of intent of what the stakes are for LEGO on this theme.

The story behind Chima is, unfortunately, again one of hate, envy and fighting. Not that it is bad, it is after all the reality we live in, but I believe Friends has taught us that a different product and storyline can also be successful.

The scene for these new adventures is Chima. This jungle like world is the home to eight species of animals (for now we only know of five, which gives us a glimpse of the planned continuity in years to come) which face each other for control of the Chi. This Chi doesn't allow them to travel between galaxies, like the "spice" in Dune, but it does contain all the force of nature. So far the tribe of the lions controlled this resource and distributed it among the rest of the tribes, but you know, possession gives birth to envy. The final scenario is that of two factions fighting for control of the Chi, and this is where the Chima theme begins.

Within Chima you can find two types of product or subthemes. One is made up of normal sets, with their vehicles and minifigs, and the other by the so called Speedorz. These vehicles are built around a large and heavy wheel - the equivalent of the spinning tops in NinjaGO - and give the theme the possibility of carrying out competitions between kids with these vehicles. With the help or a launcher they will be able to compete with the vehicels, overcoming different obstacles to get the golden Chi.

In this issue we will have a look at:

Set 70005 Laval´s Royal Fighter
Number of parts: 417
Minifigs: 3

This vehice belongs to the tribe of the lions, which easy to imagine once you have seen it. The set comes with numbered bags and two instruction booklets (one would have sufficed) and thanks to the smaller boxes the size of the box is appropriate for its contents. First up, you build the minifigs and their weapons which, as I mentioned t the start of this article

is without a doubt one of the strong points of this theme. The minifigs are extremely detailed and visually very attractive - I believe they are a big hit for LEGO®. In this case we have two lions, Laval and Longtooth, and a crocodile, Crawley. Next you build the vehicle, a process that can be split into two parts. One part with mostly Technic pieces for the internal structure and the movement of the cannon at the top, and a second part which include the large lion head that dominates the vehicle. I must say that the lion head is a great example of LEGO design, and it is by far the best part of the set. It is a pity that the rest of the vehicle is so devoid of details, because if the whole set had the quality of the lion head it would be a brilliant set. But we all know that at some point you need to reduce the number of pieces to get to the target price of the set... a pity. The vehicle has two moving elements, the cannon which can be elevated and rotated by means of two simple mechanisms and a cover that can be opened to show a map.

In short, a very playable set that will be the delight of the followers of the lion tribe, and which due to its price can be a good start to evaluate your interest in the theme. If you are careful to look at it only from the front, it is marvellous and includes some parts in interesting colours for those AFOLs who are always on the llokout for new and amazing colour combinations.

#

Review: 79103 Turtle Lair Attack

Turtle Power!!!

By Otum

Pictures by LEGO® Iberia S.A.

Until relatively recently, LEGO® had few licenses in its assortment of themes for sets, with Star Wars™ as the star of them all, but the situation has changed to the delight of children and adults, adding themes like The Lord Of The Rings™, Super Heroes or SpongeBob™. Well, this year, 2013, is witnessing the birth of another license, which makes to the guy who writes this article a big thrill. Hold on to your hats because The Teenage Mutant Ninja Turtles™ are here, the heroes of the half shell.

These mythical heroes from the 90s marked an era in every teenager who nowadays is around 35-40 years old, and now they have been rescued by the animation channel Nickelodeon, in a renewed version, with some changes from the original series, but these do not affect the essence of these four amphibians and their rat master, which is why Irecommend you to view and enjoy it.

This article is going to unravel one of the landmarks of the heroes, their lair. Where Raphael, Leonardo, Michelangelo and Donatello and their teacher, train and eat pizza.

Like all the sets that are coming out in 2013, the set number is five digit, it is a 488 parts set, and by the number of parts it is the second largest set of this license that goes on sale. The box is medium size, in the new format, that is, sized to content. Inside it has four numbered bags, a sticker sheet, and two instruction booklets, yes, you read it correctly, two instruction

booklets, not very logical given the size of the set, but one is for the assembly instructions for the atrezzo of the lair (television, skate ramp, the training totem, etc ...) and the other is used for build the lair itself.

Bag number 1 includes the parts to build the atrezzo, which comprises the television, the skate ramp, and the training totem, along with a small crane, a catapult, a shelf with cans, a hanger for skates and a work desk. It also includes a Foot Clan Soldier minifig and the Dark Ninja as well as a part separator. This part of the assembly is not very interesting, it is very easy because of the building of small elements that will give color to the set, highlighting the training totem, which includes the Shatterer helmet in dark brown(!)

Bag number 2 is for building the training and meditation room (see the animated series), and includes the minifig of Master Splinter. Regarding the assembly, nothing to emphasize, it is simple and entertaining, and it is prepared to hold the training totem commented in the previous paragraph. A mobile rack has been added, which adds to the rotational movement of the training totem, for more playability.

In bag number 3 are the minifigs of Raphael and Leonardo. The parts included are for the laboratory module, to say so, where the assembly continues its simplicity. Perhaps I should highlight the spiral staircase, which only has three steps, instead of the usual 7 or 8, but gives a very good result. It has a wall that can be removed by pushing a part behind it, and it is completed with the work desk and the shelf.

Finally, bag number 4, which continues with the assembly, adding another floor to the laboratory module, which

represents the recreational area with a pizza oven included. It is topped by a representation of a street section with sewer and a wall with graffiti on it. From the atrezzo the mini crane and the skates' hanger can be added. For playability there is a trap near the sewer, and a device that removes the pizza from the oven.

In all, it's a great set, with much playability as a result of the various moving parts and devices that have been mentioned throughout the article. In addition to that, as the atrezzo can be easily engaged and disengaged, the potential is increased.

It is true that, like everything, there's a 'but', and unfortunately it is a well-known one: the stickers. For the set size there are too many, although the truth is that they provide a spectacular result, and all of them are necessary, but the feeling is that less of them would be better. As an example there are the steps of the ladder, which are done with a sticker, not printed.

But this negative point is more than compensated by the end result, the playability of the set, and the whole assembly, which although not complicated, and there are no great building

techniques, is very entertaining. Regarding the parts, nothing special, but the appearance of the first parts in olive green is interesting.

But there is something that should be mentioned separately, the best of the set, the minifigs of Raphael, Leonardo and Splinter. They are made in ABS, all their parts, the heads and shells included. This makes the set worthwhile, if only to have a reproduction of these green heroes.

In summary, a great set, recommended, especially the minifigs, with a simple but entertaining assembly, which has a lot of playability and evokes fond memories. 7.5 out of 10.

Review: 70705 Bug Obliterator

By Manticore

Pictures by LEGO® Iberia S.A.

Set 70705 Bug Obliterator
Number of parts: 711
Minifigs: 4

As a die-hard fan of the SPACE line, I promised to do the review of this set, knowing that it has little to do with the Classic Space theme of the late 70s and 80s with the style the theme has obtained from the 90s to today. Different times, different styles, a different colour palette and a different audience.

After the golden years of the theme, LEGO® continued to invest in sets, for my liking, pretty devalued and without the charm of the earlier ones, in the subthemes Futuron, Tron Black, M: Tron, Space Police, Unitron, Spyrius, Insectoids, Space Police II, UFO, Roboforce, Exploriens, Ice Planet, Life on Mars, Mars Mission, Space Police III, Alien Conquest and, now in 2013, Galaxy Squad. It is not my purpose to criticize the evolution of the Space theme, I would not be impartial because of the good times I had with the 918 set. To delight you with these wonderful and endearing sets I recommend the reading of HBM 011: "Life in Trans Yellow".

But let's go to what concerns us. In this year 2013, LEGO resurrects the Space theme with the Galaxy Squad subtheme. There are six sets and a polybag (30231) with a five-digit numbering, typical of the new sets of this year. From the simplest, 70700, to the largest, 70705. And as flagship we find the 70705 set, Bug Obliterator, with three separate parts. A spacecraft, a land vehicle and a ... a ... well, you never know. It's a kind of arthropod (probably a bug, it has three pairs of legs) with two pairs of wings. Because the set name calls it "bug", I will call it just that, "bug".

688 parts and 4 minifigs. Of the 4 minifigs, one is an insect-headed alien (reminds me the final phase of the Jeff Goldblum transformation into a fly in the movie "The Fly"). Considering the alien as the bad guy in our story, the other three should be the good guys. One of them looks like a droid because of the shape of the head. The other two wear the typical space helmet in sets since 2010.

Let's start from the beginning: the box. Fortunately, a little smaller than what LEGO has accustomed us to in recent years. The design is extremely attractive to young people, as it shows the battle between the bug and the space vehicles at its peak.

It has 5 well numbered bags. With the first one you build the bug and the first two minifigs (the alien and one of the astronauts). With the second bag you get the land vehicle, and

the last three (3, 4 and 5) are used to build the craft that will fit onto the vehicle.

The construction process doesn't need much comment. The recommended age that is indicated on the box is 8-14, but any child could build it without much problem. Some Technic parts, but nothing complex. I have not seen any technique or parts that stand out. Maybe the new 2x2 inverted tiles, which are used to reinforce the bottom of the craft, or the pair of Tr-Clear

Windscreens, which were first seen in the 9499 SW set (Gungan Sub) last year.

Remarkable the design of the craft that attaches to the land vehicle. Just spectacular. With its variable geometry wings extended and the cockpit moved to the lower part, it could pass for a futuristic fighter jet. To attach it to the land vehicle, the side wings are brought together and the cockpit goes up. The effect of the two vehicles together is great, and provides extra gameplay to the user of this set.
It also incorporates a number of the already typical small missiles (formed by a 1/2 Technic Pin with 2L extension bar and a trans coloured 1x1 cone) to add more playability to the set.

The bug carries a capsule or container 2x4x4 Tr-purple to hold and keep any unwary poor minifig that has fallen as a result of its deathly ray fresh and juicy.

Summarizing, this set gives us a bug, a land vehicle, a spectacularly designed craft and 4 minifigs, so any child is guaranteed to have fun. The only "but" is perhaps the amount of stickers, but that is an issue that has been discussed more than enough. However, the minifig torsos are printed, as well as three pieces of the cabin.

Finally, it is true that at this point nothing can bring back the innocence of those Space craft from 30 years ago, but in my humble opinion, LEGO® is right with this new line. You just have to see it through the eyes of a XXI century child to be attracted immediately.

Review: 10937 Batman™: Arkham Asylum Breakout

By Jetro

Pictures by LEGO® Iberia S.A. y Brickset

Review 10937 Batman™: Arkham Asylum Breakout
Number of parts: 1619
Minifigs: 8

LEGO® markets the Arkham Asylum Breakout as an exclusive and does so convincingly. Firstly, there is a video available on the LEGO YouTube channel in which lead designer Marcos Bessa shows off some of the details of the set. Secondly, some very nice building techniques are used in this set. Thirdly, the set contains the considerable number of 1619 pieces, including no less than 8 minifigs. So let's look into at each of these three areas and find out what this set has to offer.

First off, there is the designer of the set, Marcos Bessa, a Portuguese AFOL turned LEGO Designer, who has been allowed to put his personal stamp on this set. As he himself explains, the licence plate on the van (28 MB 89) contains

strong references to Marcos. As he himself explains in the video, the number 28 is a family nickname, MB are (obviously) his initials, and 89 is his year of birth. What he doesn't explain is that the number of the set appear to have a special reference as well. Marcos was and is a member of the Portuguese LUG Comunidade 0937 so it seems hardly a coincidence that the number of this set is 10937.

In second place the set contains a number of interesting building experiences. While it is not the first time that LEGO uses this method (you can find another example in the battle

of helms deep which was reviewed in the previous edition of this magazine), the minifigs included in this set appear progressively as you follow the building instructions. Almost every bag contains one of them. The windows that help to give this building its characteristic look are built sideways, using trans-black panels 1 x 2 x 1. In honour of the set name (breakout), one of the windows is broken and in it some trans-black cheese slopes are used to create the jagged edges of broken glass. Other special constructions include the black guardians on the gates to the asylum, including the new piece used for their wings and the gargoyles on the roof corners, built with frogs, skeleton arms and axe heads for wings.

In third place, not only does the set contain an important number of pieces (1619) and exclusive minifigs, it is very attractively priced with a cost of under 10ct per piece.

So let's take a closer look at those pieces and how they are used.

Construction starts with the van, which has a nice classic look to it that fits in with the rest of the set. No less than 5 stickers are used in this vehicle, including the licence plates mentioned earlier, the logo on the sides of the van which are very nicely constructed using brackets to hold the 6x6 plate well in place, and a com console inside the cabin of the vehicle. The rear doors open to show two benches that are in fact used to keep the stretcher in place. This way the Joker (or for that matter any villain) can be securely transported to the asylum.

The second bag contains the pieces needed for the gate and includes Batman with a new black wing and the new individual wing pieces I mentioned earlier. The gate is wide enough to let the van pass easily, but the traditional arch over the gate is missing. Instead, the name of the asylum can be seen over the main door.

We start construction of the building with the central entrance of the asylum. The building has been divided into three sections, which in turn are built in stages. The base of each section includes Technic bricks so they can later be securely put together. Outstanding elements in this part of the construction are red phone (a sticker is used for the dial) and the desk for the security guard that includes surveillance monitors (again a sticker) and a swivel chair.

The top of this central piece includes the first instances of the windows which are topped off with arches. Attention has been

given to detail: behind each arch a trans black panel 1 x 4 x 1 is placed to give it a perfect finish.

Other outstanding details include the furnishing for the upstairs room, with a desk with an open drawer (using a hinge brick 1x2), bottles, syringes and a computer screen (a printed piece!) as well as an examination chair.

The base of the first wing of the asylum includes a cell block where another two printed pieces show up: the electronic locks of the cells. The technique used to open (and close) the cells with a sliding door is very nice, the only drawback being that you need to open/close both cells at the same time.

A nice idea is the fact that attached to each cell there is a road sign clip on that gets a sticker with the ID of the villain who is in the cell. These IDs can be swapped out with another 4 IDs that are added on a panel in the other wing of the asylum. This way, you get to decide who goes into each cell.

On top of the cell block there is a special holding cell for Poison Ivy who also gets bars in her window. Next to that cell there is the broken window through which an escape rope comes out. The rope is fixed to the floor: the weakest detail in the set, but one that can be easily fixed with a little imagination. Next up are the attic chamber and the roof. This gives you your very first inkling that something might be missing in this set: the

ice inside and the sticker with the temperature indication that go over the door leave you wondering where the Mr Freeze is. However, the magnificent round window, built using the same technique as in Bag End (79003), and the two different techniques used for building the roof (traditional with slopes on the tower and using hinges and plates next to it) more than make up for this. Anyway, Mr Freeze can be easily obtained in one of the smaller sets from the DC Universe series (76000).

On to the left wing of the asylum which includes the panel I mentioned earlier. It includes IDs for all the (known) villains included in the set as well as for Mr Freeze and Two-Face who need to be obtained from other sets, but can easily be confined to the asylum. When you turn it around you find nurse Harleen Quinzel isn't exactly who she appears to be. On her dressing table with mirror (a sticker, including a kiss from the Joker) you will find her headgear to turn into Harley Quin. You should have realised the moment you saw the black and purple under her nurse's uniform! A first time appearance in LEGO.
The upstairs area of this part contains a nice desk with printed newspaper tile and a comfortable swivel chair.

Let's go back to the minfigs for a moment. In addition to the ones I have already mentioned this set contains a new version of Robin and a new design for the Scarecrow. The only other fig that appears to be missing is the Riddler, who was included in the previous LEGO version of the Arkham Asylum.
As you can see, the set is very complete while at the same time making you want to get more elements from the same theme. It is full of interesting pieces and building techniques and good value for money. Lastly, and most importantly, this is where the bad guys have their day! Welcome to the Arkham Asylum Breakout!!

#

Review: 10232 Palace Cinema

By lluisgib

Pictures by LEGO® System A/S

Set: 10232 Palace Cinema
Number of parts: 2196
Minifigs: 6

The seventh art makes its appearance in all its glory with the new Palace Cinema in the series "Creator Expert" (the new "theme" that appeared with the Horizon Express). It really is not the first movie theatre, as in the Town Plan set (10184) there was a 60's American style cinema, but this isn't the same set, nor is it the same style.

The Palace cinema is built in three stages, as most of this type of sets. In the first step I built the ground floor and the limo. In the second phase the first floor and in the third one the roof, the neon sign and the outdoor accessories.

The first four minifigures are assembled right at the beginning. They are the popcorn seller, the limo driver, the actress (child) and the press reporter. A good choice to start with. Then we have the limousine. I dare to say that is inspired in a Cadillac limousine from the 30s, especially the front grille arrangement and "American" style vehicle. I think the wheels are a bit small for the size and type of wheel arch. The effect is a little weird.

A new feature in this set is the appearance, for the first time, of a 32x32 red baseplate to simulate a red carpet. The tiled floor in the street is nothing new, except for one of the "star" parts of this set. It is a 2x2 tile with a star, like those on the walk of fame in Hollywood. In this case, instead of names of actors, there are 1x1 bricks printed inside to make it a generic piece.

It is a corner building. On one side there are advertisements of movies that are shown in the theatre. On the other side there are two ticket offices with a small gap to exchange money for tickets. The main entrance is on the corner.

Inside the building there is the ticket sales desk with two cash registers. On the other side there is a popcorn counter with the drinks machine, sweets and, how could it be otherwise, the popcorn machine. The ground floor is illuminated with three wall lamps. To access the projection room there is a staircase that begins with a spiral section and ends in a straight one.

I regret to say that once I had completed the construction of the ground floor, I was a little disappointed. There is hardly anything that catches my attention and we have not seen in previous sets. To highlight something that I liked, I will mention the entrance door: it is a wooden and glass double door, with the gold handle.

Something that has not especially pleased me is that the set has a generous stickers sheet. I understand that there are parts that are hardly printable because of the cost involved. I also think the posters of the movies are needed but I hope this is an exception and that the next modular buildings will come without them.

Talking about the advertisements of the movies, there are some interesting funny references. The first one is "The Brick Separator" turned into a Godzilla monster lookalike. The actors are the set designers with their surname "legolized". The second one will be, for sure, controversial. I do not know

if they have chosen it as a tribute or with a bit of bad idea. The "Mystery on the Monorail" will certainly generate all kinds of comments. The third one is "Forever Sorting", a romantic comedy about the adventures of a couple ordering their LEGO® pieces.

The first floor is the projection room. On this floor there are two spectators of the projection (what would a movie theatre be without spectators?). Outside, again, nothing stands out as an interesting novelty. The techniques used are very similar to earlier buildings. Inside there are other interesting details, like the rows of seats. They are the typical red velvet ones. There

are two rows with three seats, with a total length of 8 studs each one. In this case I really like the outcome of the seats with a very simple technique and with a small number of parts. On the wall is the projection screen, white and, again, with a sticker. The screen is flanked by a red velvet curtain. It is a colourful detail that breaks up the monotony of the wall. On the other side of the room is the projector, also vintage style. It is on a platform where there is also the chair for the projectionist. Finally, a stair leads to the roof trap door.

The roof is the part that gives glory to a building that, until now, I find it a little disappointing. That does not mean I do not

like it, but up to this point the set does not seem particularly interesting.

On the sides there are two red ceramic tile roofs. To give a real effect the designers used 1x1 round brick with two shades of red. This way, the roofs are not monotonous and it gives an interesting feeling of wear. In the middle (at the corner) there is a Chinese style roof. At its bottom there is a Chinese golden hat and on top an oriental style turret decorated with sabres. Once the roof is placed on the building, it gains many positive points.

But the construction has not yet been finished. The outside sign of the theatre is waiting. It is a sign consisting of two parts: the marquee and the name of the cinema.

The marquee covers the entrance and has lights that light the front door, as well as protecting spectators and guest stars from the rain. It also has the poster that advertises the film that is being shown, in this case, the premiere of "Three Clicks & a Snap" (stickers again) starring "Minnie Figure" (is it a reference to Disney?). The light blue, black and gold combination is nice.

The theatre sign is built entirely with parts, like the other modular buildings. The letters are white, with a light blue background and finished in gold.

To finish building the theatre, there are some fences, separating the public from the celebrities, and the spotlights, essential in any premiere.

Once all the parts are placed, the feeling I have is different... better. What I was missing at the end of the first floor is offset by the roof and the sign. The outside simplicity is broken by colourful elements and attractive shapes. Now it looks like a complete building, which satisfies you when you look at it.

The Palace Cinema is the seventh building of the collection (eighth if we consider the Market Street). It is logical that each time it is more difficult to create the "wow" effect for the fans because we are very well used to it. The Palace Cinema is a beautiful building, but, in my opinion, it is not the best in the series. Obviously the oriental style is a definite plus, since it breaks with the other building shapes. The inside is somehow poor, although I understand that a theatre does not provide a lot of opportunity for inside details. I guess that is why the limo is included in the set. A success. The use of stickers is the most negative aspect in my opinion.

Do not miss the opportunity and come to the premiere of "Three Clicks & a Snap" at Palace Cinema. It is a unique event and you mustn't miss it!

Interview: Jamie Berard

By HispaBrick Magazine®

Pictures by Jamie Berard

Most of our readers won't need an introduction to our interviewee. For the absent-minded, Jamie Berard is a Design Manager Specialist, which means he is the designer who creates the most fabulous sets in the LEGO® catalogue. An AFOL hired by the company, he designs models for the Direct Exclusives and Creator Expert themes. Aside from a great creator he is close, cordial and fun. So it is a pleasure for HispaBrick Magazine to offer you an interview that Jamie has been kind enough to give.

Name: Jamie Berard
Age: 37
Born in: Boston, USA
Degree: Bachelor of Arts in English (2 years studying Civil Engineering)

HBM: Did you play with LEGO when you were a child?

JB: Yes. I especially enjoyed the Town series. As I got older, I dabbled in a Pirates, Star Wars™, Trains and Technic, but Town/City has always been where my heart is.

HBM: Did you make MOCS when you were younger?

JB: All the time. I especially enjoyed making functional amusement park rides. My inspiration would come from my family's summer vacations to various amusement parks around the US. I loved the challenge of making them work just like the real thing.

HBM: Did you dream of becoming a LEGO designer?

JB: Yes, from a very early age. The cool thing is that my family supported me and made me feel like I could actually do it for a living. I'm convinced I'm only here today because of their tireless encouragement and support.

HBM: As a fan, what is the MOC you are most proud of? Why?

JB: I'm not sure if it counts as a MOC, but I'm most proud of the work I did on the Mill Yard Project at the SEE Science Center in Manchester, NH. Along with many other members of NELUG, I had the privilege of working with LEGO Master Designers Steve Gerling and Erik Varszegi. I learned so much from them and the other members of our club. It was an amazing collaboration that I will always be grateful for.

HBM: How did you get into the AFOL world?

JB: I actually bumped into it by accident while shopping at a toy store in the Boston area. I saw a bunch of full grown adults hanging around the LEGO isle with piles of LEGO boxes in

their arms. I asked the store manager what was going on and he explained they were in a club for adult LEGO fans. I got the contact info for NELUG and showed up for the next meeting which was back around 2000.

HBM: Did LEGO contact you to become a designer or did you try to?

JB: I actually was a finalist for the same Master Model Builder Competition that Nathan Sawaya won. In retrospect, I didn't stand a chance against his talent ☺. However, I still stuck with the hobby and eventually ended up at Brickfest 2005 in Washington D.C. It was there that I had an unexpected encounter with one of the managers at the LEGO Group. After chatting with him for the weekend and showing him my amusement park rides, I gave him a link to my website where there were more images of other things I've worked on
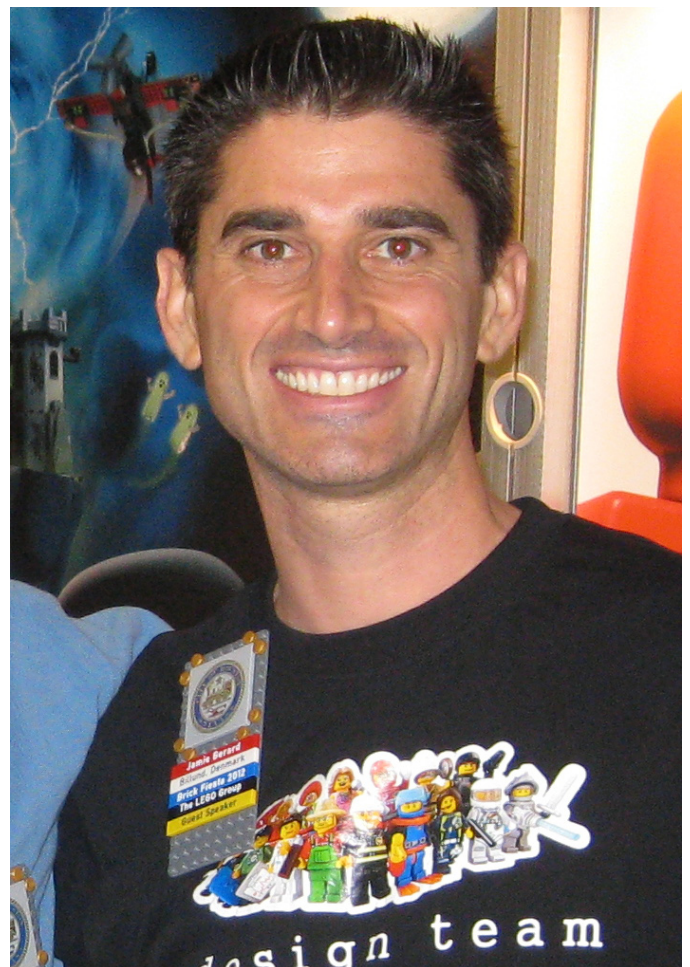
including the Mill Yard Project. He wrote me a few days later and said they wanted me to come to Denmark to work with the Creator team. It was pretty amazing the whole way it worked out ☺.

HBM: Is it very difficult to "change sides"?

JB: Yes. I think I struggled most with feeling like I belonged here. It's not like everyone wasn't bending over backwards to make me feel welcome and comfortable. I just couldn't shake the feeling that all the other designers were so much more qualified to be here. I was just a geeky LEGO® fan with an English degree and a background as a video editor, carpenter, monorail pilot and surveyor. They all had professional design degrees and amazing drawing and photoshop skills. I also felt extremely humbled and slightly intimidated working with so many of the legends who helped create my childhood happiness. Lucky for me, I have since appreciated the balance we have in our teams where all our different skills come together to make amazing stuff.

HBM: What was your first official design?

JB: My first official design was 4953 Fast Flyers. It was really a fun challenge having to learn the Creator DNA while still incorporating cool functionality that could be built by 7 year olds ☺.

HBM: Have building techniques evolved a lot since your first designs for TLG?

JB: Very much so. I'm really blown away at how much our system has evolved since I first started. We have so many more options for building cool details that would have previously been molded as a special pieces. It also helps that we now acknowledge an older consumer with our Direct Exclusives and lines like Lord of the Rings and the Hobbit. This gives us the chance to push the building possibilities without being constrained by the abilities of younger kids.

HBM: If you were to design that first model again, do you think it would be very different?

JB: I might have added more chrome ☺.

HBM: What set has been the most challenging to design?

JB: My most challenging set to design is coming out later this year. Before that, I'd say the Emerald Night was the most tricky. It was my first train and proved to be quite a challenge when they told me the XL motor was the one I had to use for the train. I had to figure out how to place a 5-module wide motor in a 6-module wide train scale without changing the aesthetic when Power Functions were added. Oh, and it had to be easy to retrofit the PF components without many changes and without compromising on pulling power or battery life. I'm fairly happy with what came out of it all, but it definitely has been improved by several fans since its launch.

HBM: When a UCS set is designed, how is the price/piece count determined?

JB: We get a budget for the bricks based on the set's pre-determined retail price. We then keep track of that budget as the model is designed. The price/piece thing is the last thing we notice because we first and foremost need to build an amazing model that will blow people away.

HBM: Is there a red line that must never be crossed?

JB: Yes. We have many internal rules and guidelines which are designed to prevent children from getting hurt and safeguard the hard-earned good reputation of the LEGO brand.

HBM: To what extent is the opinion of AFOL consumers taken into account when designing a set?

JB: For the Creator Expert line, I'd say fan opinions are especially valuable for us. It makes sense since the fans are ultimately our main consumer ☺. We read reviews, chat with fans at events and read your comments to consumer services. Our model choices are often influenced by fan polls, input from ambassadors and dialogue with our community relations team. Hopefully you also enjoy all the cool bricks in yummy colors that we include in our sets. We're one of the few groups that can rationalize a very mature and realistic color palette.

HBM: And in the building techniques?

JB: I actually try to avoid looking at too many building techniques used in fan creations. Of course, I can't help but be impressed at the models I see at the fan events I attend. But in many ways the more I see the harder it becomes for me to come up with my own new ideas. I know it sounds weird, but I would feel horrible 'borrowing' someone else's idea without being able to properly give them credit. It's just easier coming up with things on my own.

HBM: How does criticism from consumers affect a set that in first instance was destined to be a commercial success?

JB: Criticism is critical because it means that people care enough to comment. Silence can mean indifference, so I'd much rather hear the good and the bad because it gives us a chance to continuously improve. It was criticism of 10213 Shuttle Adventure which highlighted an opportunity for us to react and improve the model. 10231 Shuttle Expedition is an excellent example of how we were able to address consumer criticism in a positive way that improved the model and assured commercial success.

HBM: Is each set created by a single designer or do several designers work in parallel for the same set and then merge ideas?

JB: Our retail models are often shared by several designers. The Creator Expert and Direct Exclusive models are more often handled by one designer because of their size and complexity. Of course there are exceptions both ways. Palace Cinema, for example, was conceptualized by our intern Jordan Schwartz, but then developed and finalized by Astrid Graabæk.

HBM: What is more important when designing a new set, playability or the aesthetics of the final construction?

JB: It's always a happy balance. If anything, the play features are often reduced to focus on fewer key features that are easier to communicate. We designers often have a bad habit of trying to cram as many cool things into a model as possible. Lucky for us, we have marketing to step in and help us to focus ☺.

HBM: How did the idea of designers presenting their creation in a video come about?

JB: I can only speak for our team, but we decided to do launch videos for the Direct Exclusives because it quickly became apparent that we would never be able to travel to all the fan events where the models were unveiled at. The videos allowed us a chance to not only show off key features and development stories to the fans at the events, but also to all the other fans around the world.

HBM: How many designers work for LEGO® currently?

JB: There are about 100 product designers here in Billund. There are many more designers who work on graphics, element design and promotions.

HBM: How are you organized internally?

JB: We make the new hires and interns buy cake for made up occasions. After about a year, we require cake for anniversaries and birthdays. Once you're established, you're tasked with coming up with new excuses for the interns to buy more cake.

HBM: Are you still as excited about designing as when you started?

JB: More now than ever. Seriously ☺.

HBM: Of all the sets you have designed, which do you consider the best and which the worst?

JB: My favorite is probably the Green Grocer, but I wish I could have done more interior. It's my favorite because it's the one model that I really had a hard time getting people excited about as a follow-up for the Café Corner. It was very encouraging to see it so well received when it finally made it to market. The model I learned the most from was probably the Emerald Night. As much as I'm proud of the work I did on making it the best model possible, I still think I learned a lot from its development and launch which will only help us make even better models going forward.

HBM: Which are, in your opinion, the 5 best sets in the history of LEGO?

JB: Best ever is too tall an order to fulfill. I can instead mention 5 sets that made me smile for various reasons:

- 7412 Yeti's Hideout (I love the string mechanism. It really inspired me to add functionality while designing 10226 Sopwith Camel)
- 8043 Technic Excavator (A true engineering marvel that looks gorgeous and makes me happy)
- 6285 Black Seas Barracuda (Such a cool flagship for the Pirates theme)
- 6392 Airport (the first set I ever asked for twice. My parents couldn't understand since they had already bought it for me the previous Christmas! That's when I knew I was a true LEGO fan ☺)
- 10020 Santa Fe Super Chief (a real standout among LEGO trains. I distinctly remember the taste of the floor when my jaw dropped seeing it for the first time)
#
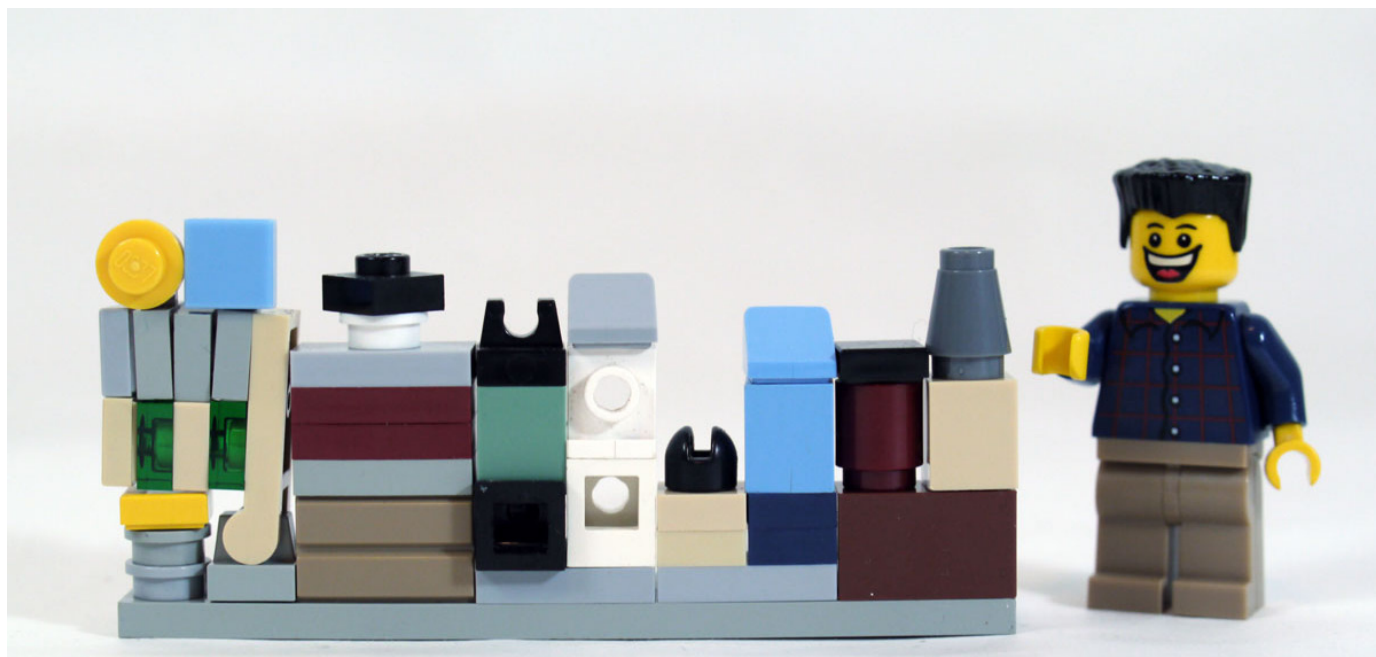
Pillards of the Community: The BrickFactory

By HispaBrick Magazine®

Pictures by The BrickFactory

Have you ever lost the instructions for one of the classic sets? Have you ever bought a second-hand set without instructions? Have you ever looked for the instructions of one of the favourite sets of your childhood? Then you have almost certainly looked for help on this page. Today we talk to Bert Giesen, the man behind The Brickfactory.

HBM: How did the idea of The Brickfactory come up and what was its original purpose?

BG: My son was born in 1994 and I re-discovered LEGO® in 1998 by showing my son the old LEGO I had. He was also interested in building with my old LEGO and so I tried to build the old sets I had, but I had lost the instructions. So I started looking online for the instructions.
I found them on Peeron, however this was slow

HBM: To what degree has that goal been fulfilled?

BG: I think the site has proved it's use. I have even heard from some LEGO-support workers they send people the site's address if they have lost instructions which LEGO doesn't have anymore.

HBM: How many people are working on the site and how did you meet?

BG: At this moment I am the only one maintaining the site.

HBM: How many visits does the page receive?

BG: About 60,000 unique visitors every month and about 50.000 page views a day

HBM: Some time ago it was possible to download instructions as a batch using Bob Kojima's BSBackup. Are there any plans to re-enable that possibility?

BG: I am working on this, however the current Web-server doesn't support FTP. I hope to create some script to download the pages soon.

HBM: How do you get the instructions that appear on the site? Do you get a lot of collaboration from AFOLS?

BG: Most of the instructions I convert myself, some are sent by other users of the site. At the moment I am busy converting the 2012 instructions to put them online.

HBM: What criteria do you follow for publishing instructions?

BG: The instructions of the current year are not shown till next year.

HBM: How many instructions are available? How much space do they take up?

BG: At the moment 4653 Set instructions, 204 catalogs, 14 ISO-images of LEGO-Software, and some specials I built or other things I found. A total of about 20 GB of data.

HBM: Is there a model that is especially sought after that you don't have instructions for?

BG: At the moment I am looking for scans of stickers of sets. As I am myself more a MOC-builder, I usually buy bricks, not sets.

HBM: Which are the oldest instructions you have available?

BG: 1958 is the year of the oldest instructions I have.

HBM: Which are the most demanded instructions?

BG: There are no instructions which are viewed more than others.

HBM: How do you evaluate AFOL collaboration in this project?

BG: In the beginning I had a lot of support for finding old instructions. As I now have them nearly all, the support is less. However, there are AFOLS all over the world who send me scans of the newest instructions.

HBM: A website like The Brickfactory must cost money. How is it funded?

BG: At the moment there is advertising on the site to fund the website, this is enough to pay the webpackage from my provider.

HBM: What is your relationship with TLG?

BG: No relation to TLG at all. (other than me buying their product ;))

HBM: Have you had any complaints from LEGO®?

BG: None at all till today (All I know is the customerservice of TLG points people to the Brickfactory for old instructions)

HBM: Do you get any support from LEGO to find old instructions?

BG: Non till now, but I haven't asked for it either.

HBM: During these years of daily following the LEGO community, which do you think are the main changes that have occurred in the AFOL community?

BG: In the years I have seen people come and people go, however the communities I know are a steady group of people who like the product and the use of it.

HBM: How much time do you spend to keep The Brickfactory running?

BG: On average about 3 hours a week.

HBM: How do you see the future of The Brickfactory?

BG: I hope the site will be available for a long time and support the LEGO (not only the AFOL) community.
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WWW.BRICKFACTORY.INFO

Great creators of the world: Nannan Zhang

By HispaBrick Magazine®

Pictures by Nannan Zhang

Known the world over for his science-fiction creations, as a blogger for The Brothers Bricks and for being the driving force behind Creations for Charity (keep your eyes peeled for the August issue), no AFOL will need more information to know whom we are talking about.

Hispabrick Magazine: Name?

Nannan Zhang

HBM: Age?

NZ: 24

HBM: Nationality?

NZ: I was born in China and I am now living in the US.

HBM: What do you do normally?

NZ: I am a medical student in Dallas.

HBM: When did you first start building with LEGO®?

NZ: I started building at age 9 when I came to the US.

HBM: When did you start posting your models online?

NZ: I started posting my creations on MOCpages and Brickshelf in 2004. The online community offered me lots of inspiration and the opportunity to share my creations with others.

HBM: What is the last set you have purchased?

NZ: Kai's Fire Mech.

HBM: What is your favorite commercial LEGO building theme?

NZ: My first LEGO sets were from the Wild West theme, so that's my favorite.

HBM: What is your favorite LEGO element and why?

NZ: I really like the transparent purple pod from the Galaxy Squad sets; it's a unique piece that can add a lot of character to a sci-fi creation.

HBM: Which part would you like LEGO to produce?

NZ: I want LEGO to make a transparent minifigure torso and legs so I can create a cloaked minifig.

HBM: How many hours do you spend building with LEGO?

NZ: I rarely have time to build when I'm at school so probably a day or two every several weeks.

HBM: What do your family/friends think about this hobby?

NZ: My friends and family accept my hobby but they don't understand it as well as a LEGO fan, but that's to be expected and I'm fine with that.

HBM: Do you draw or pre-designs before you start building?

NZ: I just imagine the creation in my head before I build it, and I build based on the natural progression of the model, which can end up very different than how I first envisioned it.
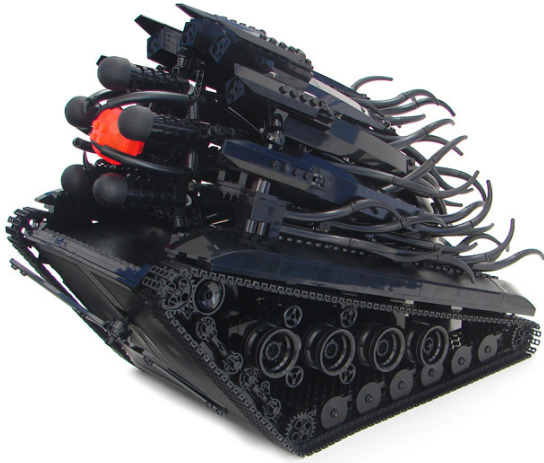
HBM: What is your favorite theme for building?

NZ: Sci-fi, most notably spaceships and dioramas.

HBM: If you had to choose one among all your creations, which one would you choose and why?

NZ: I really like the blue and red spaceship that I made a year ago. I think it's very unique and memorable.

HBM: If we see photos of your creations in the years 2007/2008 in Flickr, what do you think are the main changes in your building style?

NZ: In my early years in the online community, my builds were mostly monotonous bley spaceships and black alien creations. I wanted to be associated with a monotone style, but I eventually realized that there are limitations to working with just a few colors. I tried incorporating more color and the results surprised me. Now color is one of the biggest factors when I plan a creation.

HBM: The increase of AFOLs and lines like Star Wars™ create new possibilities not imagined before by LEGO®. What do you think about the old school LEGO and the new LEGO?

NZ: As long as LEGO keeps making new parts in new colors I'll be happy. I don't buy sets to build them; I only buy sets for

parts. Therefore I really enjoy themes like Chima and Friends that are great for their new colors and interesting parts.

HBM: What do you think about the use of non-official parts (stickers, modified parts, non-LEGO elements,...)?

NZ: I'm fine with using stickers and custom LEGO-compatible accessories from, but most of the time I still build with official LEGO elements.

HBM: How did your collaboration with TBB start? When you decide to highlight the MOC of any creator, do you rely solely on your personal tastes or do you think about creations that the readers will like most?

NZ: I joined TBB in late 2007 when I offered to help them blog more creations. My standards for blogging have gone up over the years from seeing so many creations. I blog things that are
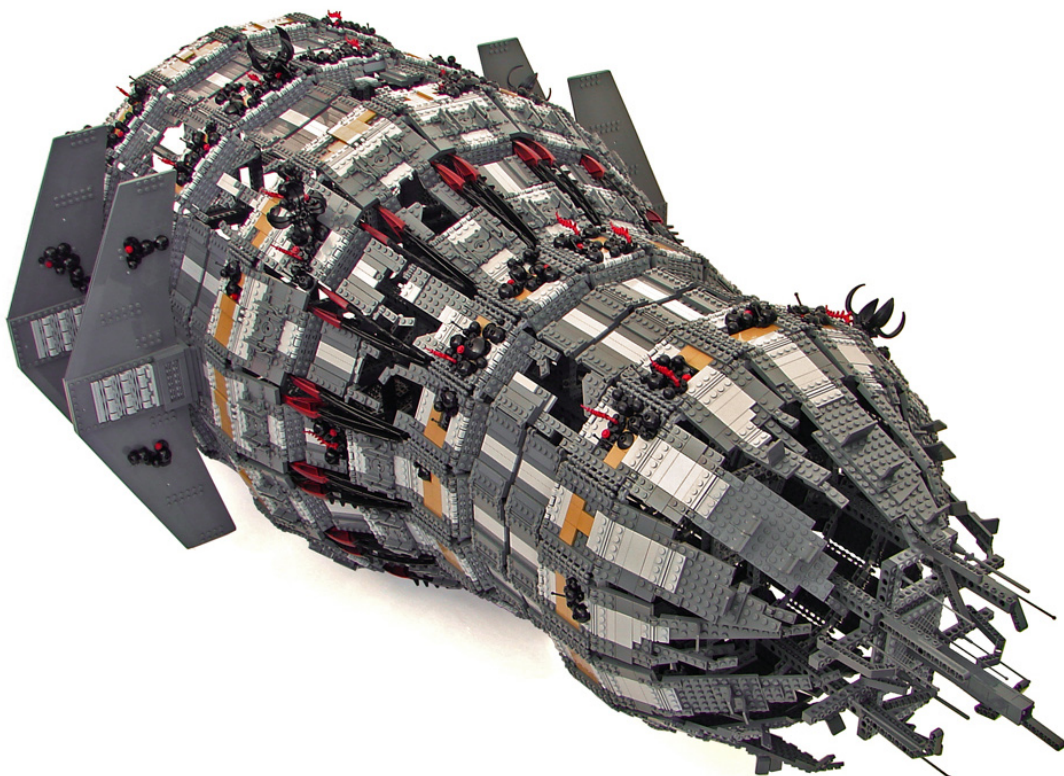
interesting and unique to me. Sometimes I also blog creations where it appears that the builder has put in a lot of effort.

HBM: How did your collaborations with Tyler Clites come about and do you guys have anything planned for the future?

NZ: I asked Tyler if he wants to build a sci-fi diorama with me for Brickworld 2010. We each built half of the project and I traveled to his house to put it together before we headed off to display the creation. It was a huge success and we collaborated on 2 more projects afterwards. We currently have one in the works that I think will be our best so far. Hopefully we'll finish it this year!

HBM: How did The Blitz'ard Collaboration come about? What were the main challenges in establishing this collaborative project?

NZ: This was a flash mob collaboration organized by Sean and Steph Mayo (Siercon and Coral). The idea was to have about a dozen builders each build a scene depicting a race of polar bear warriors and post them all at the same time. We organized it within a private Flickr group and worked on our builds separately and at our own pace. All it takes is a motivated leader and some interested builders and a flash mob collaboration will be a piece of cake to organize, and it's fun too!
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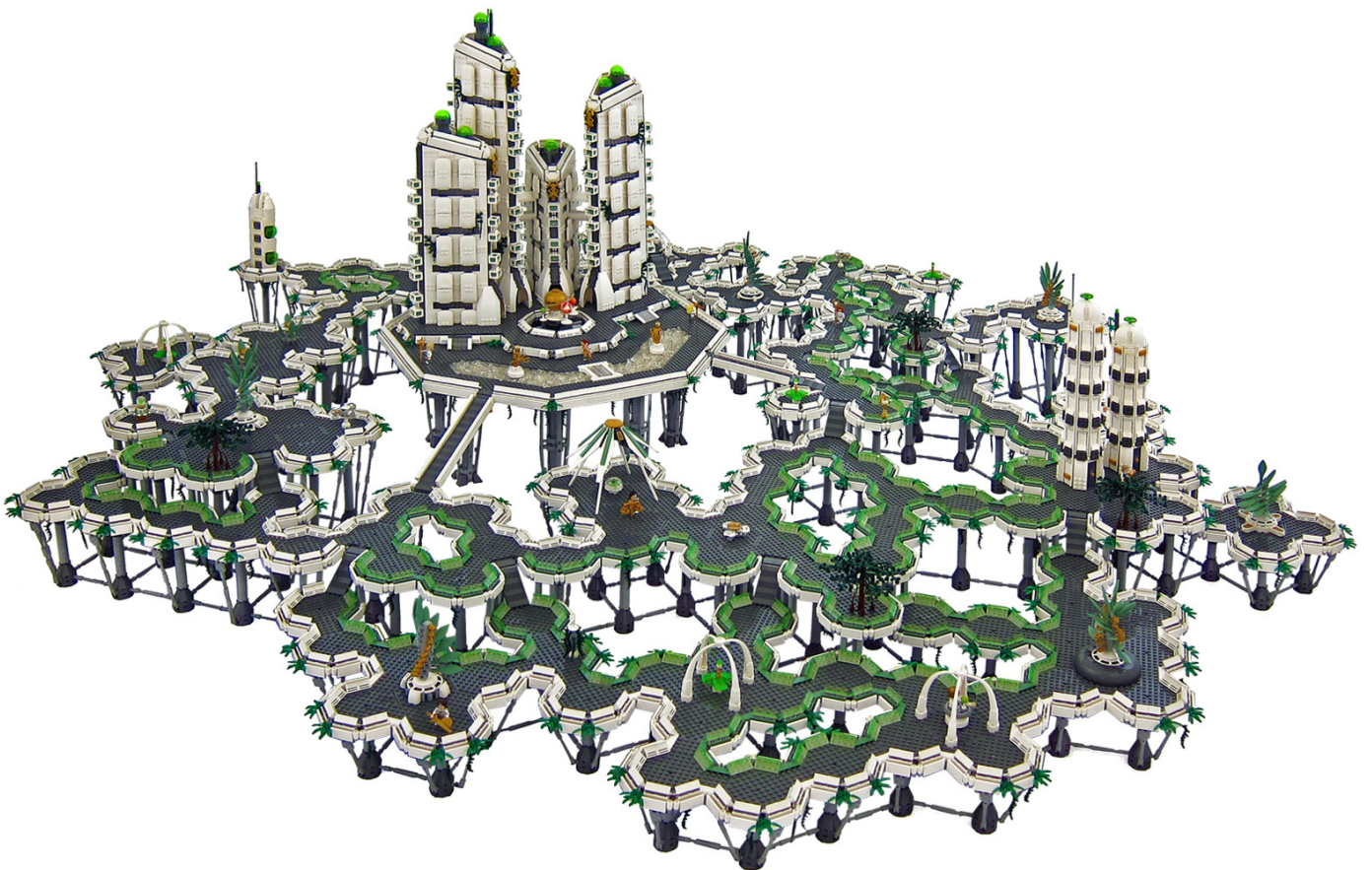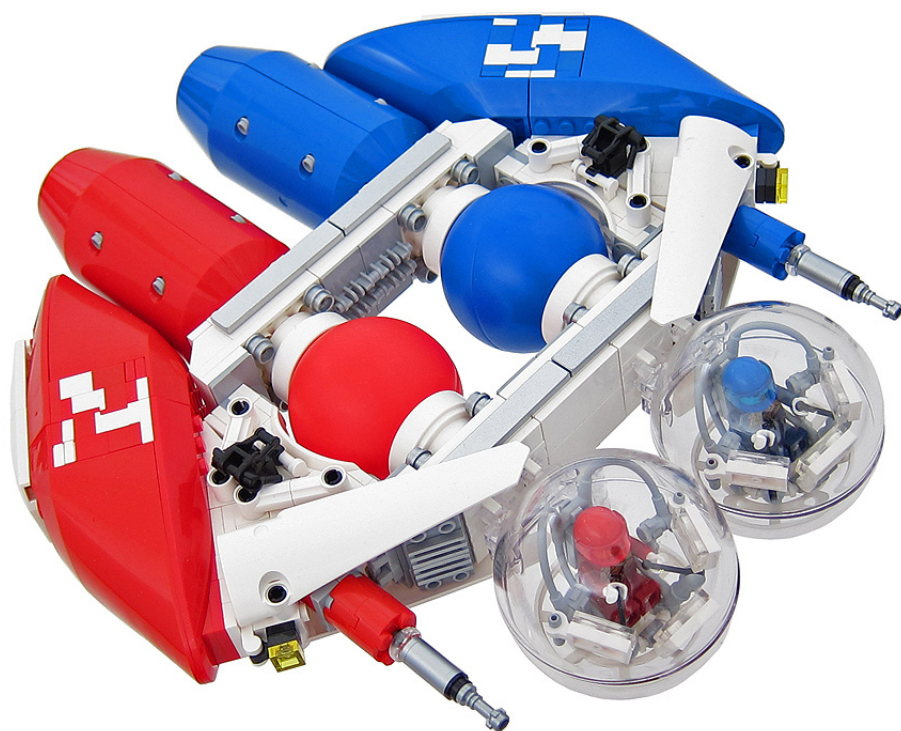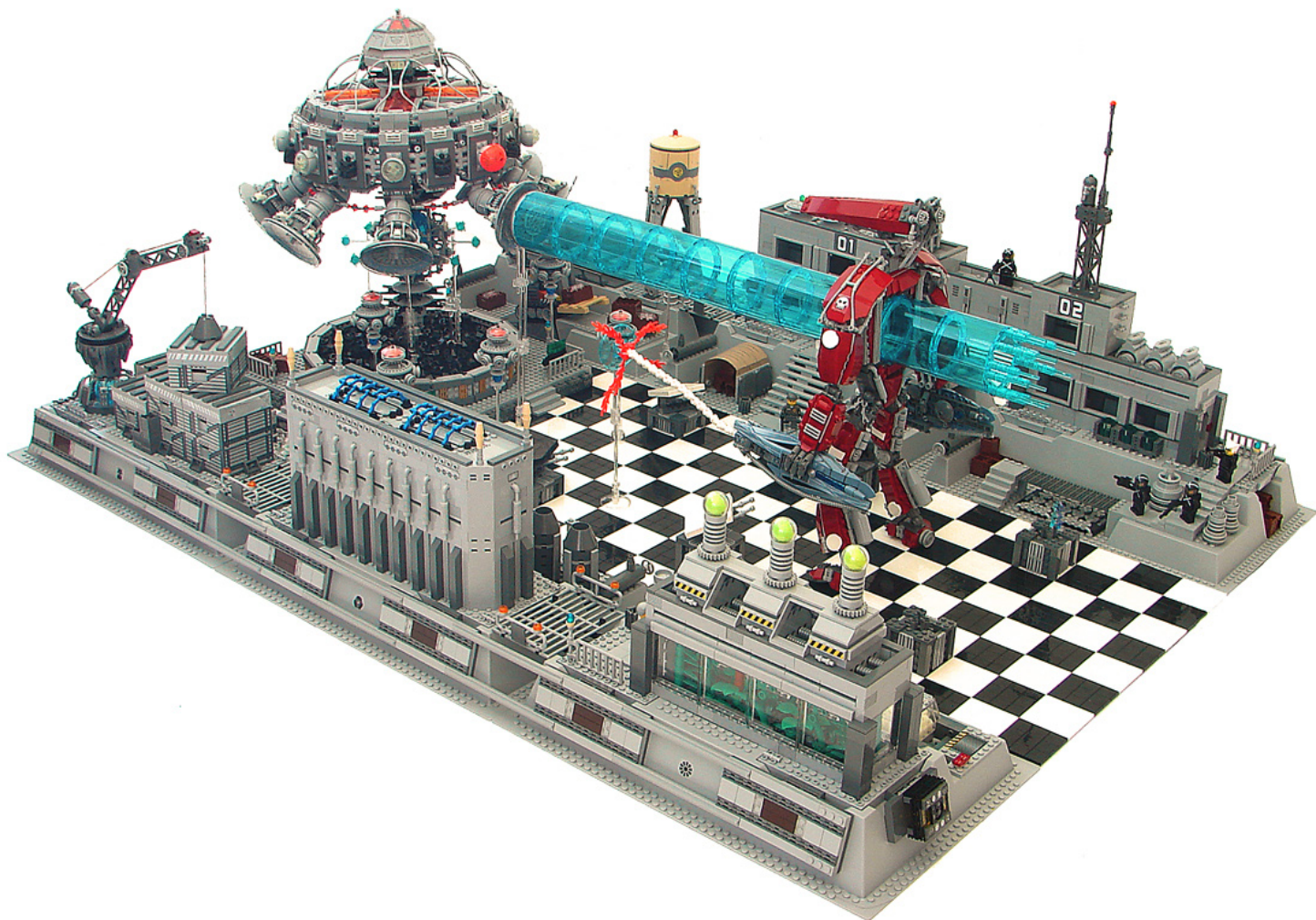
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First Place Minifig

"German on patrol" by Lord_Derrin

First Place Display

"Chronicles: Run Down" by Andreas

BCP Juegos BrickArms® Contest Winners

Second Place Minifig

"Sci-fi-g" by ReikStheII

Second Place Display

"Brazil Back Alley Chase" by Evil Lemur
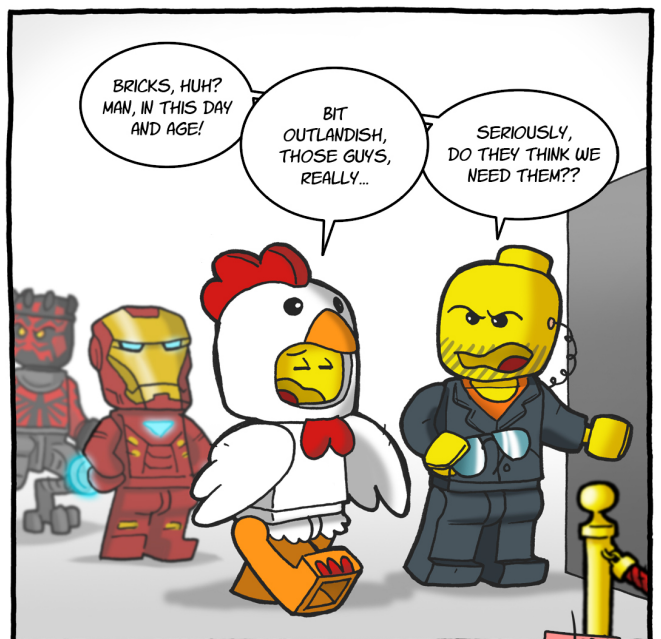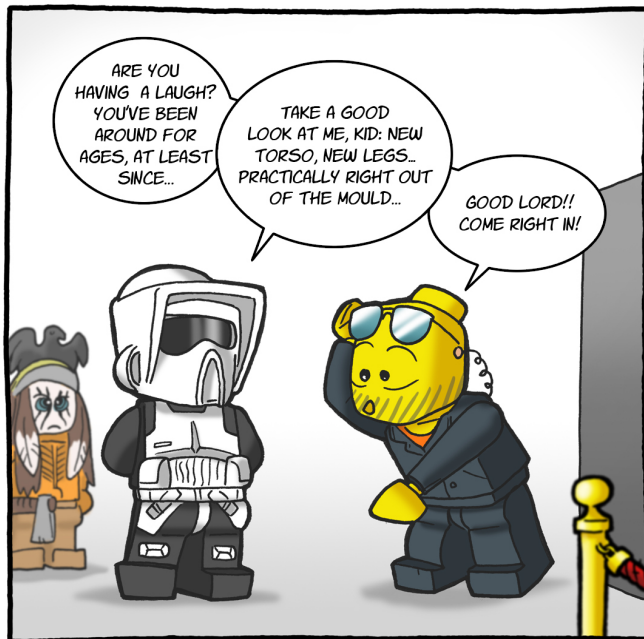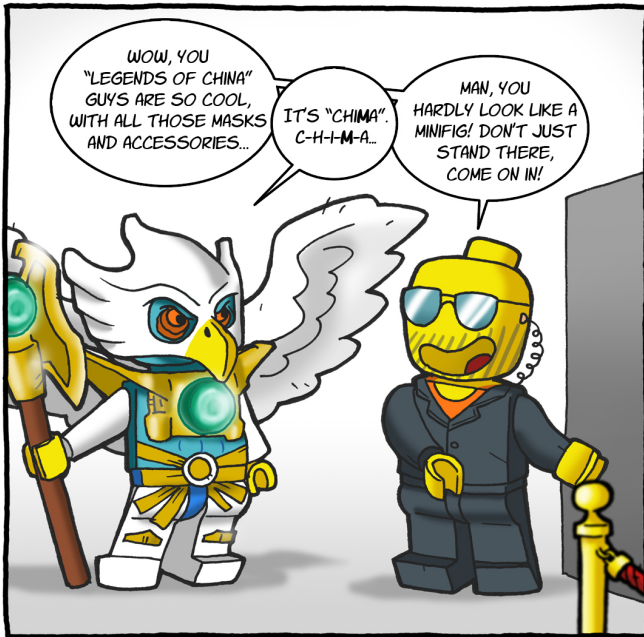
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Our collaborators on the Internet

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Brotherhood Workshop	www.youtube.com/user/BrotherhoodWorkshop
Carlos Méndez (Car_mp)	http://www.flickr.com/photos/carmp/
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