

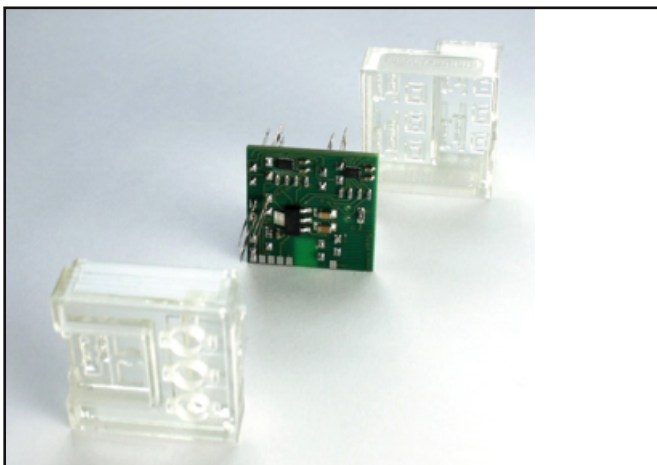
SBrick

By HispaBrick Magazine®

Pictures courtesy of SBrick team

Almost a year has passed since we first caught sight of the SBrick project on Kickstarter. SBrick promised to take remote controlling LEGO® creations to the next level and at a price that would be within the reach of everyone, so it was something we kept our eye on as the Kickstarter campaign easily passed its goal. We got our hands on an SBrick soon after and were impressed.

First, the SBrick is small. It feels light yet there's a lot of power under the hood. It can slot straight into your LEGO creation and can control up to four peripherals at the same time; these could be motors or LED lights. It also works over bluetooth - specifically BLE (BT4) - and boasts a range of close to 100m.. One of the highlights is that unlike the infrared remote control, with the SBrick you can control your creation outdoors and in direct sunlight. BT control is a great leap forwards when it comes to playing with LEGO and it is innovative; if any proof of this was needed there is an IP pending on the technology housed within the SBrick.



The SBrick team also got the looks of the module just right - it fits into LEGO models smoothly and has a great finish. Once you start using BT control, going back to the simple infrared remote control is a little like switching back to black-and-white TV from your large HD box... you could do it, but why would you?

With the one-year anniversary of the successful Kickstarter campaign just around the corner, we decided it would be great to check in with Vengit, the Hungarian team behind the SBrick, to learn about its story. We talked to **Lénard Pásztor**, founder and



CEO, and hardware developer **Tamás Fábíán**, in their Budapest office to find out more.

HispaBrick Magazine: Judging by how busy your office is, the last year has been quite an exciting one for you. But the SBrick story must have started earlier. How did it begin?

Lénard Pásztor: I can't remember the exact date, but I was sitting at home on a rainy Sunday evening in Budapest. It was probably late October, early November. It was getting late but I didn't want to go to bed just yet so I started rummaging around my apartment - my aim was to do a bit of tidying, boring I know. Anyway, I found a box I hadn't seen in years. I opened it up and saw hundreds of LEGO pieces from a set my dad had given me probably 25 years earlier. So I thought I'd put it together. I didn't have instructions, but LEGO sets are a little bit like riding a bike, you never forget how to do it. Fast forward 45 minutes and I'd finished putting the creation together and that's when the light went on in my head. Because this yellow truck was complete but it just sat there, motionless. Then for Christmas I got a 42009 MK2 Crane for a present. It took me a week to put together yet when it was complete it didn't give me enough of an impulse to start playing with it. I thought to myself, wouldn't it be much better if I could start playing with it without restrictions?

That's when the SBrick idea was born. As the Vengit team were playing around in the office with other Internet of Things (IoT) devices in our lab, we already had the first prototype ready in the middle of January.

The second prototype meanwhile was working by the middle of February, so you can say the SBrick went from an idea to something quite concrete very quickly.

The second prototype already had a case to go along with it, which you can see on our Kickstarter page.

HBM: But LEGO® already has a remote control kit.

LP: Yes it does, but I was thinking of something much better. Infrared is such an outdated technology especially when it comes to remote controls. The range is horrible, you can't use it in the sunlight. I wanted something which would really allow me to control that LEGO truck anywhere.

We live in a modern, high-tech world, where things are powerful, small, of course controlled via a smartphone because today just about everything works through your phone. And then I thought, why don't I design one with my company? And last but not least, I wanted to be able to design the user interface any way I wanted. I didn't want to be tied down to a single option but wanted a way to show off my creativity. This feature would eventually be known as the Profile Designer.

Tamás Fábíán: At Vengit our forte is using cloud solutions to help companies scale but the SBrick was going to be our first attempt at making a physical product you could touch and hold, all in-house. I was really excited because not only am I a huge LEGO fan, one of my main interests is radio and communication. And I saw that the SBrick would be something that would bring all of that together.

HBM: What were some of the key features you worked on?

LP: There were many, to be honest. When we started working on the SBrick, we didn't want to create

something that was "sort of okay." We wanted to put something together that was going to immediately be the best thing on the market, as well as being affordable enough for everyone to use. We also wanted an app to go along with it, so there were several pieces to this complicated puzzle. Not only did we have to design and then manufacture the hardware, we also needed to work on the housing so that it would feel as LEGO-ish as possible. The housing needed to make it simple to attach all LEGO power functions elements. The app would have to be available across all platforms, IOS, Android and Windows phone. This meant a lot of work.

HBM: What problems did you come across?

LP: We went through design after redesign of the hardware until it was just right.

TF: It was important... no, essential, that the SBrick draw as little power as possible, yet be powerful enough to control every peripheral.

We also wanted the SBrick to be able to be used for robotics, so the programmable firmware was something we worked hard on. We are just finishing up the user interface which will allow you to program the SBrick through the app, which is pretty amazing for a small brick that only costs 40 GBP (ed: at the current rate about €57 or US\$62). This means that the SBrick, and your LEGO creation, will be able to function autonomously. Again, this is something we're proud of. We helped to build a gondola lift model at the TOMAR BRInCKa 2015 exhibition in Portugal, and also used and programmed an SBrick to play the first few notes of the Imperial March (Darth Vader's Theme) on a LEGO motor.

The biggest problem we had was with the Android version of the app; the SBrick application works only on those devices running Android 4.3 or higher. Because there are so many hardware models running Android, it has been really hard to test our app on each smart device - this has been annoying to say the least. Luckily we've put so much work into it that the app now

works perfectly on IOS and Windows, and is almost flawless on Android as well.



HBM: How was the SBrick received by the LEGO® community?

LP: Well, let's put it this way. Without the support, help, advice, and input of the LEGO community, the SBrick would never have become a reality. Like I've said many times, I think that the SBrick is truly a collaboration between Vengit and the LEGO community. Whenever we've asked for their input, LEGO fans around the world have been gracious enough to let us know what they need. I can't tell you what a big thing this is. It has allowed the SBrick to develop incredibly quickly, because we take their advice on board and continue to try and give them just what they asked for. Just go to Youtube and search for SBrick, or look for #sbrick and you will be amazed by the videos posted online. What is amazing about these videos is that 99.9% of them are created by our users, not us. It's amazing! We were hoping it would turn out this way but plans don't always work out the way you want. But the LEGO community has been great, and we continue to have a dialogue with them through the social.sbrick.com website, our social platform.

HBM: How many SBrick users are there out there at the moment?

LP: There are about 4500 users on our social site, which is a strong start for something we expect to continue to grow. The social site allows people to chat about the SBrick, share experiences, race each other, get notified about LEGO and SBrick events, and even buy and sell things through the market. We've learned

that people will buy the SBrick as long as they know about it, but they're even more likely to buy SBricks if they're in front of them. So we're looking for people, stores, chains and companies who are willing to act as resellers for the SBrick all around the world; with Christmas only months away this is a key focus.



TF: One of the really cool features of the SBrick is the Profile Designer. The Profile is what you see when you are controlling your LEGO creation using a smart device; it's basically the GUI. You can design your GUI layout any way you want - this is important because we're all different and individuality is essential through the social.sbrick.com website. Then you can either download it to your device and just use it, or if you want you can share it with other SBrick users. This means many times there is already a Profile available for the LEGO set you're putting together. We're working on making the Profile Designer more intelligent, to make it simpler to add lighting controls

for example, or to make it possible for trains to simply coast rather than move under power.

LP: The SBrick team is continuously adding Profiles to the market - you can download these for free - because the SBrick is being continuously improved.



HBM: Besides the LEGO community, have you had any feedback from other tech people?

LP: We've been recognized in Hungary as an innovative start-up, and as a result we've been invited to quite a few places to show off the SBrick. The biggest event we've been to so far was in Austin, TX, for SXSW Interactive. We've also been to other tech conferences in Europe where we caused a bit of a buzz.

HBM: What did they like about it?

LP: As you probably know, most techies are still kids at heart, and I haven't met a kid yet that didn't like LEGO. So that was one thing they liked. What they were excited about is that the SBrick is a true Internet of Things device (IoT). IoT is a trendy word that is bandied about a lot to describe how objects are becoming connected through the internet, and the technology on which the SBrick runs is exciting for those who believe in connectedness. But what they also seemed excited about are the projects we're developing right now as we have several things in the pipeline at the moment. Of these, the biggest thing is education. That is the area we are now moving towards and where we feel the SBrick will be an incredible tool.

HBM: Education? What do you mean?

LP: The SBrick is perfectly suited to helping children, or adults, learn about programming and robotics. There is something really satisfying about seeing a child put a LEGO kit together, then adding the SBrick and then start to play with it. It always puts a smile on their faces, and on mine when I see it. But if you look at the larger picture, of teaching programming and basic



Sbrick panel for remote control in a mobile device.

robotics in schools, this is something we designed the SBrick for when it was just a tech spec on a piece of paper. It is something that it was created to do, and some people are already taking notice. In order to make the SBrick more useful for education - to allow it to accept more sensors for example, we had to redesign the control layer. Now we will be able to include the smart device's gyro sensor, or perhaps its camera. Later it will also be compatible with LEGO® Mindstorms sensors as well. At the moment the SBrick is compatible with LEGO Mindstorms motors, but only by using a special cable. We are constantly on the look out for ways to make the SBrick more useful; with education we are trying to find more and more peripherals we could connect to the SBrick, to really make something incredible.

HBM: So what is next for the SBrick?

LP: We are working now on adding to the SBrick line. We will be making sensors, peripherals, and all manner of things that you can attach to the SBrick to make it even more fun to play with. But the first thing we will be finishing is a new power supply for the SBrick. Ever since the first SBrick got into the hands of our Kickstarter supporters we have been fielding complaints about how poor the stock LEGO power supply is. So we're going to fix that problem first. The SBrick can carry 11V and 3A to pass through it, which is a lot. With a bigger and better power supply, people will be able to create really fast-moving vehicles. But we also want to produce a small power supply that will be suited for those building trains - for example as a train switch.

HBM: Last but not least, has LEGO shown interest in the SBrick?

LP: They haven't made contact with us but I am hopeful that the SBrick will eventually become part of the LEGO portfolio. They are one of the largest toy manufacturers in the world and by comparison we are very small. But our SBrick does far more for far less than what LEGO currently offers. However, at the end of the day they are a business focused on the bottom

line, so to be noticed and picked up we will have to sell more SBricks.

But we're doing well, we have a fantastic community on our SBrick social site along for the ride, and we're constantly evolving and improving. So watch this space!

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