MCP

The origins

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In the previous edition of Hispabrick Magazine you could read an interview with Kjeld Kirk Kristiansen in which he stated that the very fist time LEGO® turned to the AFOL community for collaboration on the development of a new product was in relation to LEGO® MINDSTORMS®. The experience turned out to be so positive it was later applied in other product lines.

So how did this all come about? The LEGO MINDSTORMS Robotics Invention Set (the predecessor of the NXT set, including the RCX) was launched in 1998 and supported from the MINDSTORMS headquarters in California from 1999 to 2001. After that support for the RCX and RIS software on the retail side was discontinued [1]. In a way MINDSTORMS entered its Dark Ages.

In 2003/2004, The LEGO Company (TLC) was going the trough a difficult time. There was a financial crisis and many things had to be rethought. There were however some clear indicators of what direction to follow. Even though support for the RCX had disappeared and no publicity was made for the set, four years after its release it was selling very well: and the MINDSTORMS products accounted for roughly 25% of the annual sales in 1999-2000. An interesting fact was that about half these sales were to adult fans of the product. With this level of success among fans, the product needed and deserved to be revived.

LEGO had learned an interesting lesson when the RCX was released. Only months after the product became available both the RCX and the RIS software had been hacked and information about it was freely available on the internet [2]. Although initially LEGO was quite worried about this, after some time it realized this might actually be a good thing and decided to release some technical information for the fans. [3]

LEGO also realized there were people out there who knew more about their product than they did them selves, and so it was that when LEGO started developing the new generation of MINDSTORMS they decided to get some input from that AFOL community. The project was of course still secret so they had a good look at the community, made a shortlist of active people with interesting ideas and decided to contact 5 of them. Four of these – John Barnes, David Schilling, Ralph Hempel and Steve Hassenplug – responded to the sparse email they received asking them to sign an NDA[4]without knowing what they were getting into other than that LEGO was interested to talk to them. After that they were given access to a special forum which initially didn't contain any information. They soon worked out what they had in common. After a few days, Søren Lund, the director of MINDSTORMS, informed them that a new generation of MINDSTORMS was in the works, but that it was still very early days and they needed their input to help with the design. And so the MUP – MINDSTORMS User Panel was born.

The input from the MUP was crucial to the way the final product looked and worked. The original retail RCX set only featured two touch sensors and a light sensor. Later on a Rotation sensor, a temperature sensor (only for Education) and the Vision Command add-on which included a USB camera were released.

The ultrasound sensor, the 'hassenpin' and the battery pack which was released later are all the result of the efforts of the MUP. Steve Hassenplug and David Schilling even travelled to Billund and were invited to revise the set inventory and prototypes for the NXTs circuit boards. Of course the MUP had many more great ideas, but not all of them fitted in the idea and budget LEGO had. [5]

After about half a year the MUP were asked to propose names of other people who could help out in the project and MUP2 (informally called the "Muppets") was started with 14 members who continued to work together with LEGO on what would finally become the NXT 1.0 set.

In 2006, when the NXT was almost ready for production, LEGO put the word out at CES Las Vegas that it needed 100 beta testers for a new generation MINDSTORMS product. Even though LEGO specifically mentioned the product would have a cost of $150 (in an effort to limit the number of submissions to people with a genuine interest in testing and developing models for the NXT) they received over 9000 applications!

They then sifted through applications to find people who fitted one or more of the criteria for selection – had they written a book about MINDSTORMS before, did they have specific knowledge on programming or electronics, were they accomplished builders, etc. The MUP were asked to act as moderators on the forum that was set up to collect the feedback from the MDP – the MINDSTORMS Developer Program.

It soon became clear that several additional sub-forums had to be created to cater for all the different areas of interest that the MDP came up with. An example of such an area is the work of Jason Railton did on the NXT's black and white screen to get it to display grey values or Andreas Dreier who wound up writing nxtRICedit[6] to allow for animated images on the NXT screen. The

MDP also came up with a number of inspiring models, custom sensors, alternative programming languages and other interesting uses for the NXT. To compensate them for their efforts and the fact that they had initially paid for a pre-production product they received a complementary NXT 1.0 kit once the product was ready for distribution.

When the MDP came to an end some were happy to move on to other things, but others expressed the desire to somehow be able to keep in touch and continue in the spirit of what had been started. To cater for this need and because LEGO also valued the chance of continued collaboration the MCP – MINDSTORMS Community Program – was created. The program is now in its fourth cycle since its start in 2006.

Sometimes priorities and personal situations change and some of the people who have been involved from a very early stage have moved on to other things. LEGO® also discovers new talents and people with a strong community spirit who are invited to new editions of the MCP. But the general spirit of this collaboration between LEGO and MINDSTORMS AFOLs has not changed and the impact is noticeable both in the product LEGO produces and the community around MINDSTORMS.

I'd like you to meet some of the people who are and/or have been deeply involved in one way or another in the MINDSTORMS AFOL – TLC symbiosis so you can get a first hand glimpse of history of the MCP.

[1] In 1980 LEGO Education came into existence to cater for the specific needs of educational institutions who wanted to use LEGO in the classroom. As of 1998 it included LEGO MINDSTORMS for Schools and hardware and software support has been available through that channel from then on. The FIRST LEGO League (FLL) was started in 1998 (with a first competition in 1999) and the number of teams that participate has continued to increase significantly from year to year, starting with just under 1000 in 1999 and reaching almost 15000 in 2009. You can learn more about the core values of FLL in the previous edition of Hispabrick Magazine.

[2] The first to publish specific information on the internals of the RCX in terms of hardware and communication protocols was Kekoa Proudfoot. You can still find the information at http://graphics.stanford.edu/~kekoa/rcx/

[3] LEGO released the SDK or Software Development Kit for the RCX , Scout and Spybotics range in order to provide additional information about the programming of these elements. It is currently available at http://www.philohome.com/sdk25/sdk25.htm. It contains documents on the commands the RCX 2.0 firmware accepts, the communications interface between the LEGO USB tower (for IR communication with the RCX) and the computer and more.

[4] Non Disclosure Agreement – confidentiality agreement

[5] It may be interesting to note that although there are many adult users of MINDSTORMS who are taken into account in the development of the product, there is also another important target group, aged 10-14. Since MINDSTORMS is not only robotics, but also a toy, this puts heavy constraints on the possibilities and needs in terms of safety, ease of use, etc.

[6] http://ric.dreier-privat.de/Docu/index_eng.htm
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