LEGO® and Robotic classes in Japan

By Alberto Moreno

Images by Alberto Moreno

Robotics will be a mandatory subject in Japanese schools by 2020. According to recent studies, 49% of current jobs will disappear due to the use of robots in the workplace, and the Japanese Ministry of Education takes these studies very seriously. As a result, robotics and programming studies aimed at children are no longer a rare sight in the country. In these studies you will find that the presence of educational robots from LEGO® is quite pronounced.

These materials are easy to obtain and there is a lot of documentation available. A well-known brand like LEGO® transmits confidence to the students and the security of a stable brand makes it possible to develop long term plans. All these factors have been decisive in choosing LEGO® for teaching robotics.

For the little ones there is LEGO® WeDo and in 2017 LEGO® launches the LEGO® Boost kit. But the undeniable star is the MINDSTORMS EV3, which has been present in many international competitions, such as the WRO (World Robot Olympiad) which is also celebrated on a local level.

As an example of how widespread the use of LEGO® MINDSTORMS is in Japan, the Japanese company Youmemiru started the Robo Done Robotics Academy franchise project for kids aged six and up, using MINDSTORMS EV3. After only a few years there are already 50 academies all over Japan and they are expanding to places like Hong Kong, Shanghai, New York and Seoul. For the second year they held the annual RoboFes 2017 Robotics Festival in Osaka at Kansai University, tripling the number of participants. Children between the ages of 6 and 12 flocked to the university to build their LEGO® MINDSTORMS robots, program them and compete. The attendance of over 1,000 demonstrates that Japanese interest in robotics is growing exponentially.

The competition consists of navigating a circuit with different objectives to accumulate points. In the event of a tie there is a speed bump, so it is not just about completing the circuit through all the tests – you have to do it in the fastest and most effective way. The tests range from simple runs from point A to B without touching the walls to line following and transporting blocks from one area to another. The competition focuses solely on programming and all teams use the same robot design.

Thanks to the LEGO® MINDSTORMS programming system and the number of robot assembly guides available online (facilitated by the WRO) children learn the basics of programming and schools can transition the programming language in blocks

from LEGO® to Python easily. With a five year educational plan you can find children who start programming with LEGO® MINDSTORMS at the age of six and at ten are already programming robots with Python – something that even science fiction literature would have found implausible.

But in Japan robotics education is not confined to the most innovative academies and schools. Even Buddhist temples are offering MINDSTORMS EV3 programming courses with Robo Tera ('temple' in Japanese) – a collaboration between Robo Done and and a number of Buddhists temples throughout Japan.

These Buddhist temples had a problem. Although the Japanese population continues to attend and participate in temple activities, these were too antiquated to attract a new audience. In other words, they noticed there was no generational relay to continue the culture of the Buddhist temples. However, by offering construction and programming classes with LEGO® MINDSTORMS EV3 robots they have found a way to attract children of all ages. It is interesting to see how children build and program robots in a temple, following the directions of a buddhist monk. Tradition and the future go hand in hand thanks to LEGO® MINDSTORMS.

Robo Done: http://done-school.com/
Robo Tera: https://robotera.jp/
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