



# Reviews

## Website Review – EV3Lessons.com

by Jetro de Château

If you have been reading HispaBrick Magazine® for some time you will no doubt be familiar with the Seshan brothers. They have been collaborating with tutorials and other articles about programmable LEGO® platforms since HBM026. Every collaboration has an origin, and in this case the work the Seshan brothers have put into their website EV3Lessons was what sparked their involvement in HispaBrick Magazine®. We have done reviews of many kinds, but never of a website. However, EV3Lessons has recently celebrated a number of accomplishments that merit recognition and what better way to do that than by reviewing the website.

### Who are the Seshan brothers?

When EV3Lessons was founded, Sanjay and Arvind Seshan were 11 and 9 years old respectively. They had already been building and programming LEGO® robots for some time and developed their expertise through participating in the FIRST® LEGO® League (FLL)[1]. In the spirit of the Core Values of FLL, they decided to share and work together with others. To do so, Sanjay and Arvind wrote lessons to teach others about building and programming robots, and shortly after taught those lessons at a one-week summer camp. Their bundle of “Ten Easy Lessons to Program your EV3” was shared on a team website and more and more people started downloading the lessons. Spurred on by the interest, the Seshan brothers wrote more lessons ranging from beginner to advanced.



Seshan brothers

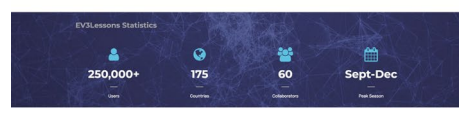
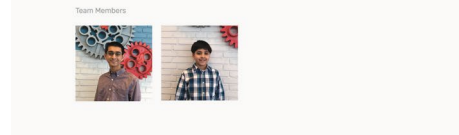
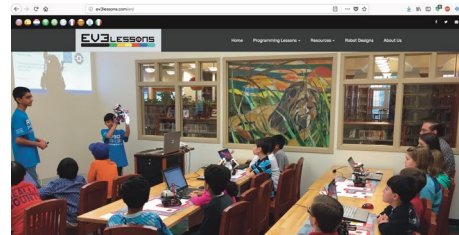
### Birth and evolution of EV3Lessons.com

In October 2014, the [EV3Lessons.com](http://EV3Lessons.com) domain name was purchased and all the lessons Arvind and Sanjay had written up to that date were moved to the site. The lessons continued to attract interest from an international audience, and in January 2015 the first lessons were translated into Dutch by a group of students from Eindhoven (The Netherlands). At that point the website had 3000 users worldwide.

Within a year from when the site was launched, the number of users grew to 20,000 in 124 countries. The site had also grown considerably and included specific sections on robot designs, robot design lessons and team building activities. Another innovation to the site was the addition of automated scoring

tools. The Seshan brothers also developed iOS and Android apps for these tools.

2016 saw an increase to 90,000 users in 150 countries and a new section was added: the Coach’s Corner as a blog to help rookie robotics coaches worldwide with tips on how to run teams. The brothers challenged their mother to contribute to EV3Lessons, as their friends and colleagues had done already. Her response was the creation of Coach’s Corner, for which she initially wrote, but later started curating and soliciting articles for. This was a perfect fit for their mother as an experienced coach and youth robotics judge who was (and is) well-connected with the adults in the robotics community. The interest in and traffic on the website accentuated the need for an easy and accessible communication channel for FIRST LEGO® League users which would embody the values and goals of EV3Lessons. This led to the creation of an affiliated Facebook group in January 2017 – FLL: Share & Learn – and a spinoff website called [FLLTutorials.com](http://FLLTutorials.com).



EV3lessons website

Currently, the two websites have over 300,000 users from 175 countries. Lessons are now available in 10 languages (English, Dutch, Spanish, Arabic, Portuguese, Greek, French, Catalan, Hebrew and Italian) and scoring tools in 12 (English, Dutch, Spanish, Portuguese, German, French, Greek, Italian, Hebrew, Hungarian, Slovenian and Romanian). All of these translations have been completed by volunteer users from around the world.

The site is now used by schools across the USA as well as around the world. Recently an Italian teacher who was using the lessons decided to translate them into Italian and shared them back to EV3Lessons for all to enjoy. EV3Lessons was also recognized by the FIRST organization at the Showcase Event at World Championships in Houston and Detroit in April 2018.

In June of this same year the site was completely redesigned. You can now read sections of the site in 10 different languages. It has a sharp, modern design and is mobile friendly. You can find programming lessons organised in categories ranging from beginner to advanced (all based on 'EV3-G', the official EV3 programming language). There are also lessons dedicated to combining EV3 hardware with third-party hardware (like the PixyCam, the Raspberry Pi and third-party sensors) and EV3Dev. These lessons are designed for users who want to go further and learn to program the EV3 in different languages.

Each lesson follows a clear sequence. At the start the objectives of the lesson are highlighted. The lesson then teaches the tools required to reach those objectives and sets a challenge. Next, a sample solution is provided and further challenges are suggested. The lessons also use hints to point students in the right direction to achieve a solution. In this way, students quickly absorb new concepts (because they are handed the right tools) and make the learning their own (because they provide their own solutions).

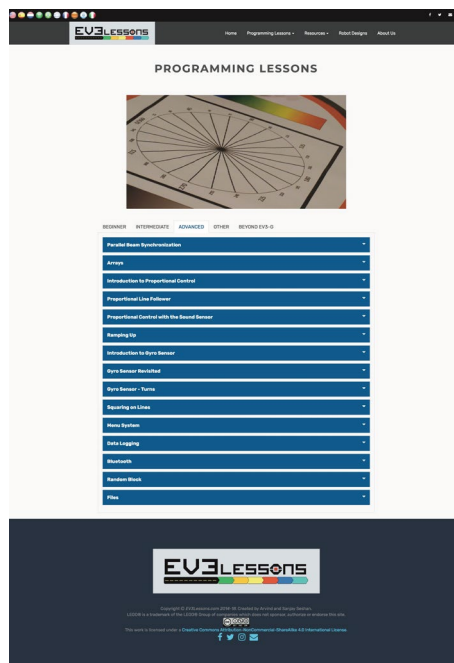
The resources section contains a link to [FLLTutorials.com](http://FLLTutorials.com), a sister site that hosts information specific to the FIRST LEGO® League competition. Elements like the scorers and the Coach's Corner have been moved to this site. What stands out is that while the initiative clearly lies with the Seshan brothers, the site has become a hub of information and tools that has a large community not only of users, but also of collaborators. Whether building instructions for projects or lessons, the site hosts quality materials from many sources, including accomplished educators and award-winning FLL teams.

Most of the designs in the robot designs section are education-style models, aimed to provide a starting point and inspiration for FLL, WRO and Sumo competition models. There are also a number of fun builds. Many of the models were designed by the Seshan brothers, but also in this section there are contributions from a range of talented builders. The models fit in with the general mindset this website fosters: gather your tools, follow the hints and be inspired to find your own solutions!

## Conclusions

In just four years, the Seshan brothers have managed to build, maintain and expand a website that has become a go-to reference for teams partaking in the FIRST LEGO® League and World Robot Olympiad specifically, and EV3 users in general. The lessons do not provide solutions, but point their audience in the right direction, providing the tools required for the student to solve the mission at hand. The lessons are

updated and improved with the experience and feedback they get from the workshops the brothers run in many schools and from users around the world. This work ethic also explains the success of their scoring tools. These are constantly updated as new information and clarifications of the rules become available. They also work with FLL referees and incorporate their feedback. Collaborators are informed of the changes so that each and every language version contains the most recent and accurate information.



List of programming lessons

There are many sites that provide beginner tutorials, but finding intermediate or even advanced tutorials is a lot harder. In addition, the lessons are short and to the point. More importantly, the lessons are well maintained, ensuring the information is up-to-date and error free. This reliability is one of the main reasons the site has such a great reputation. Whether you participate as a team member or a coach in a robotics competition or just want to learn more about the EV3 programming platform, EV3Lessons should be on your list of go-to places.

[1] If you want to know more about their team "Not the Droids You Are Looking For" and what they have accomplished over the years, visit: <http://www.droidsrobotics.org/>

Acknowledgments: I would like to thank Asha Seshan and Marc-André Bazergui for supplying historical and background information.

*Did you know the Seshan brothers have recently started a new website called [BoostLessons.com](http://BoostLessons.com)? It already contains the Boost lessons they have written for this magazine and based on the quality and reputation of [EV3Lessons.com](http://EV3Lessons.com) it has all the makings of another must-follow LEGO® robotics resource!*

