

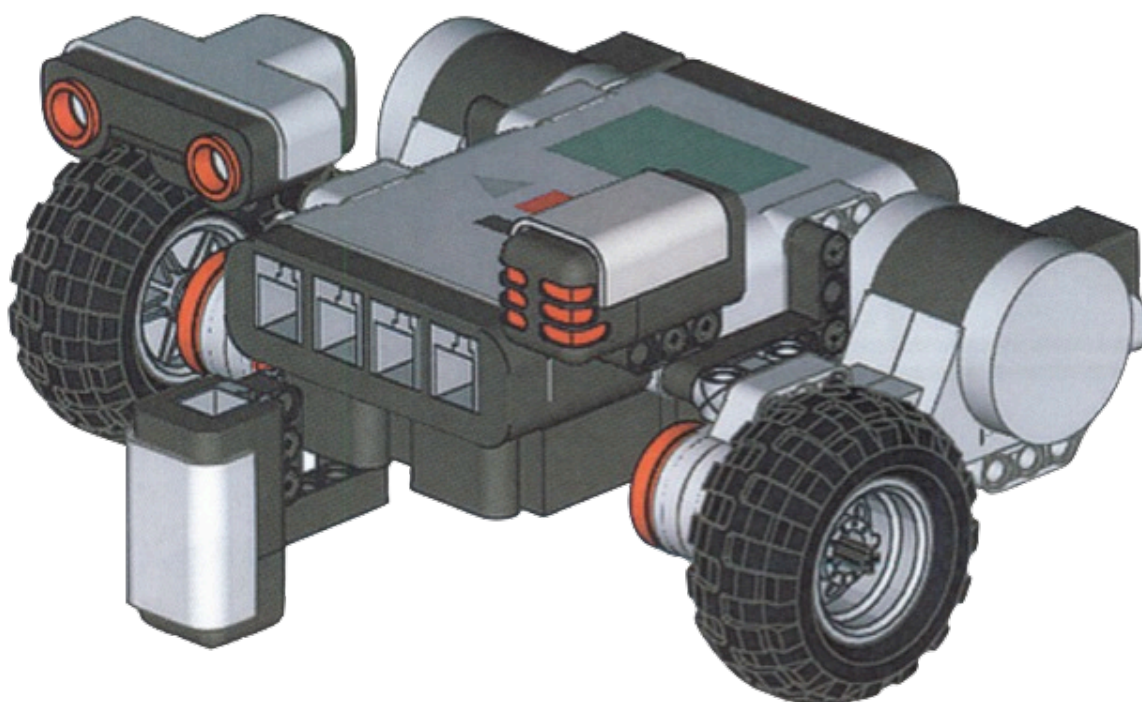
technocamps

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LEGO Mindstorms Workshop Content



LEGO Mindstorms

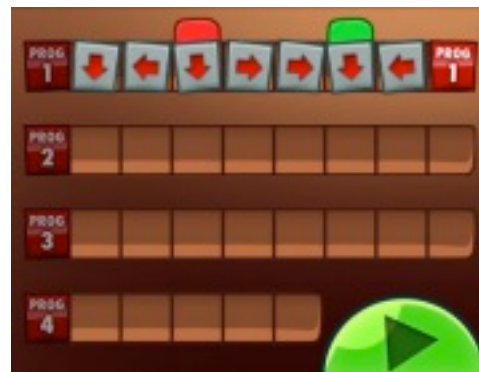
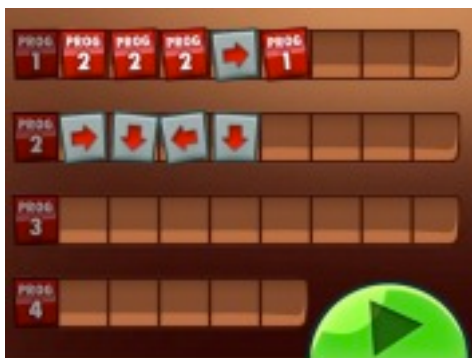
The LEGO NXT Workshop Technocamps offers provides participants with a broad range of computer science skills. These skills include problem solving, mathematical understanding, robotics, programming and team work.

Within this workshop the participants will be firstly introduced to problem solving skills looking at a (free) application called “Cargo Bot”. This application shows a “goal” to achieve, to achieve this the user is required to give the application a variety of instructions to carry out. It also considers the shortest route to the solution, this is a very key skill regularly applied within the STEM industry. Following that the groups will be asked to build a basic LEGO Mindstorm model, ready to be programmed.



The group will be asked to participate in 2 mini challenges. The first one sees how well they understand the idea of the “rotations” in reference to distance using the robot’s wheels as a basis. The second challenge is to complete an obstacle course without touching the edges. This can be achieved in a variety of ways. For groups that are new to the software they can use simple instructions to guide the robot around the challenge or users can give the LEGO robots a list of instructions to carry out without user control. The more advanced option is to use a sensor to sense the outside of the maze, this takes more time but incorporates more advanced elements of the LEGO Mindstorm programming

For those comfortable with the NXT software and interface, there is the option of using “Robot C” as an alternative. This is available to those with more advanced programming experience.



LEGO Mindstorms

Use of basic coding constructs will assist further learning of programming in general and can be applied to any given programming language. They are fundamental basics, this drag-and-drop style approach is a good introduction into understanding these elements.

During the workshop the participants will get to use a variety of technology, including:

- iPads
- Voting clickers
- MacBook Pros
- LEGO Mindstorm NXT kits
- and possibly Arduino kits for demonstrative purposes if they are available.

