DEVOL'S PRODIGY

STUDY GUIDE

This category will have 2 components for which the delegates will have a choice in selecting - the basic Arduino Uno kit or Lego EV3. The kit chosen will have no bearing on the nature of the competition; it will remain exactly the name no matter which kit is used. There are three rounds in total, one race, and one war.

General Guidelines/rules: Every team will be required to make use of their own kits (which must be brought at their own expense) but the construction of this robot has to be done on site.
The delegates are required to have all the appropriate softwares downloaded on their device beforehand since there will be no guarantee of a Wifi connection on the day of the event. Links to the appropriate softwares are provided below:

Arduino IDE: https://www.arduino.cc/en/software
Lego Mindstorm: https://education.lego.com/en-us/downloads/mindstorms-ev3/software/
HC_05 control: https://play.google.com/store/apps/details?id=braulio.calle.bluetoothRCcontroller

Round 1: Building the Robot
Delegate limit: 3
Duration: 4 hours
Round description: This is a test of expertise! This round, teams must make their robots for use in the upcoming Round 2. The robot must be designed to be a line-following robot which will use the basic Arduino/EV3 kits, an IR sensor, and a magnet.

The delegates using the Arduino kit will have access to a basic code for this robot which will NOT have the values for variables - delegates are required to do so themselves. Delegates using EV3 will not be provided with code. Keep in mind that the maximum size dimension limit is 12x12 inches.

Round 2: Line Following Race

Delegate limit: 3

Duration: 4 hours

Round description: **This round will be the same for both EV3 and arduino**

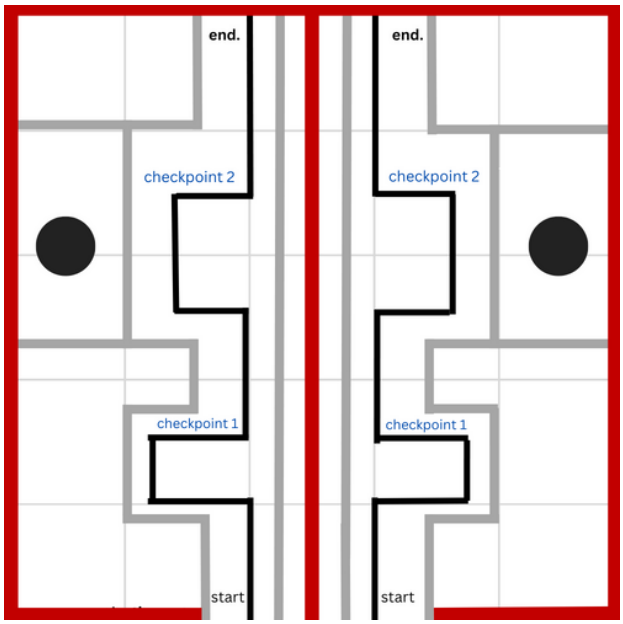
Judges will conduct an assessment of each team and their robot/kits. While both subcategory delegates practice in the arena, each team will individually be called to the judges panel and questioned on their equipment, robot construction, and overall understanding of the field of robotics. Each team will be graded by the judges, and these points will be added to the cumulative score.

Round 2 requires delegates to maneuver their robots through an obstacle course against another team. The robots - made during Round 1 - must be programmed to a code from delegates' own devices. A simple, tested code will be provided to all delegates which will NOT include the values for variables - delegates will be required to modify the code themselves according to the arena.

During the obstacle course, robots must:

- Reach the designated checkpoints.
- Capture the flag (for Arduino kit users) or fruit (for EV3).
- Make their way to the finish line faster than the opposing team.

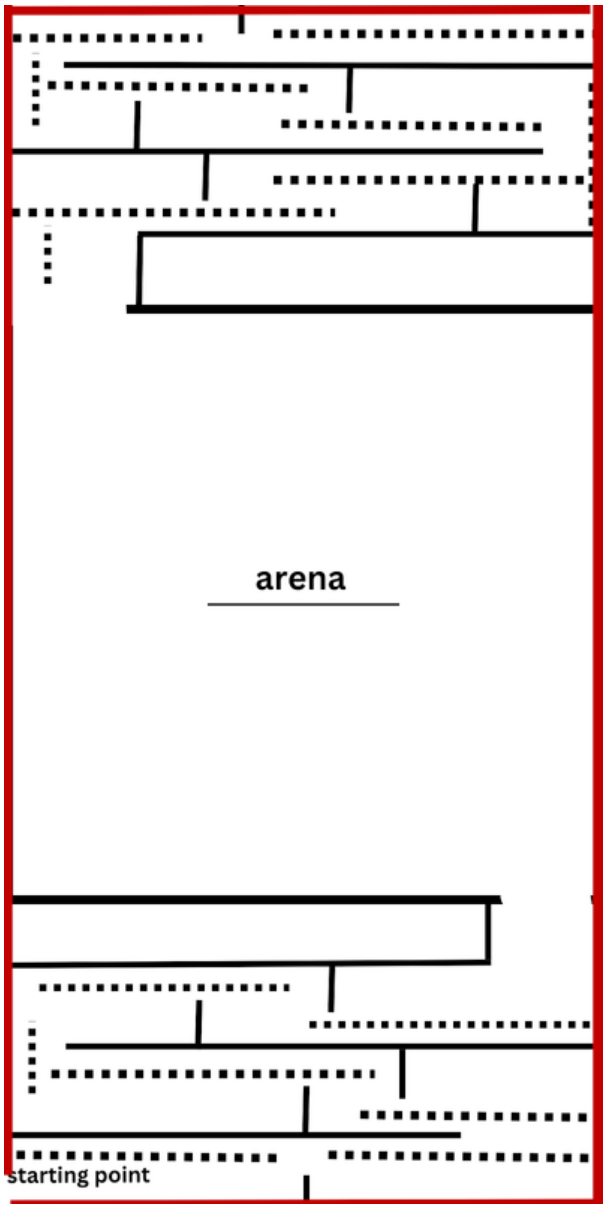
Teams will be judged based on time taken to complete the task and level of success in fulfilling the above criteria.
The design for the arena in Round 2 is given below:



Round 3: Robowars
Delegate limit: 3
Duration: 4 hours
Round description:
Arduino:
This round tests your hand-to-eye coordination, ability to control your robot, and most importantly, your fighting instincts! Before the competition, delegates will be provided with the HC_05 module (which delegates are required to modify their robot for (before the round starts), and attach this

component with a code they must develop themselves as well).

The category will be conducted in a 1 vs. 1 format with teams competing head-to-head, having their robots traverse a maze leading into the arena. To win, robots must push the opponent out of the arena boundaries. This process will continue with the winning teams until only one robot is left standing. The final winner of Round 3 will receive double the amount of points! The design for the arena in Round 3 is given below:



Round 3: Lego EV3

Round 3 will be a continuation of Round 2 with one more challenge added!

Disclaimer: All the rules mentioned above are preliminary and may be subject to change at the day of the event. The decision of heads is final.

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