IEEE Ottawa Robotics Competition
Compétition de robotique d'Ottawa d'IEEE

Wildlife Ambulance Challenge

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Disclaimer

It is your responsibility to read and understand this document on a regular basis because we may update it from time to time.

If you have questions, please contact our Micro Bit Team at orcmicrobit@gmail.com.

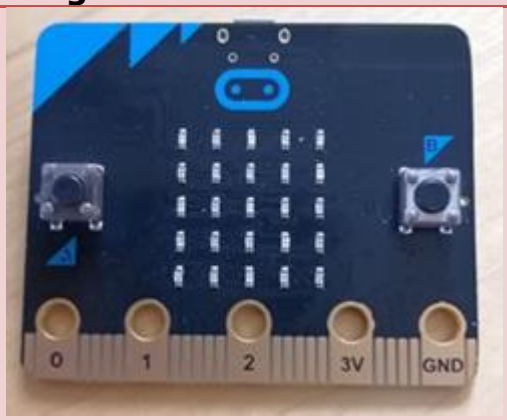
Wildlife Ambulance Challenge

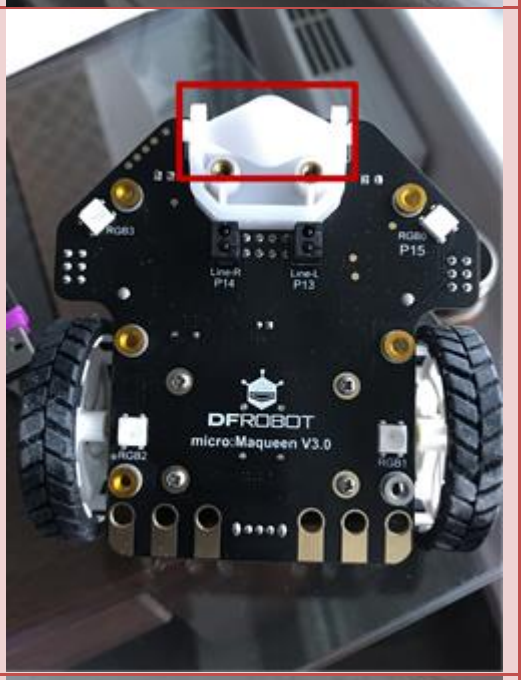
Climate change is affecting animals across the world. This year, animals from the Arctic, the Amazon rainforest and Australian wilderness are exposed to life threatening events. Your task is to use a Micro:bit based animal ambulance to deliver these affected animals across some of the most dangerous terrains on the planet.

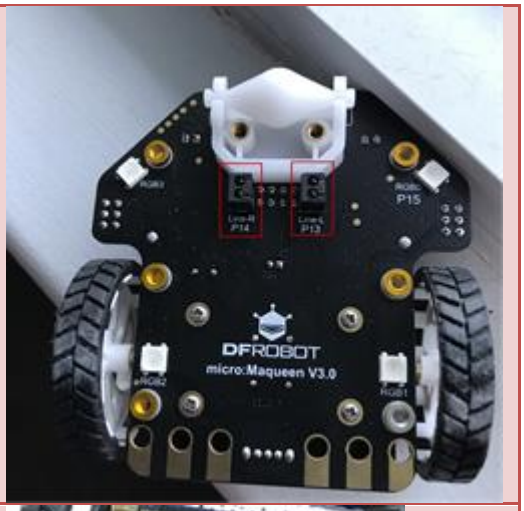
Your Micro:bit will be tested on three terrains simulated using black electrical tape and obstacles.

Approved Kit

For this challenge, we will only be accepting the DFRobot Maqueen Kit. Please note that the components that come with the kit are the only ones that will be accepted. This kit includes the following parts:

Part Type	Examples	Diagram
Hardware	Micro:bit	

Movement	Wheels x(2)	
Movement	Roller x(1)	
Distance Detection	Ultrasonic Sensor	

Black/White Line Detection	Infrared Sensors	
Source of Luminescence	Various coloured LEDs	
Battery Pack and Batteries	3AAA	

Challenge Rules

1. All components of the robot participate must be from the kit and NO modifications are allowed.

2. NO wireless or bluetooth control is allowed.

3. Locomotion can only be done on wheels and the roller.

4. At the start of the challenge, you and your team will come to the contest area, and you may not change your robot's program while you are competing.

5. Your robot should be placed in the start box.

6. Timing of your attempt will start when the team captain starts the robot following the command of the judge.

7. There will be 3 tracks that your robot will go through. Each layout will have a different level of difficulty.

8. Your robot will have 3 attempts for each track and 2 minutes maximum to finish for each attempt. Your robot must follow the black lines and avoid appearing obstacles while going through the track.

9. After your robot starts, the team captain will be the only one who can:
    a. Restart the robot from the START line each try.
    b. Remove the robots from the track following the judge's demand.

10. The objective of the obstacle is so that the robot stops before hitting the obstacle for 3 seconds, which will be then removed and the robot is expected to continue to follow the track line. However, if the robot hits the obstacles, a time penalty will be given and the obstacle will be removed so that the robot can continue the track. A 15 second time penalty will be given.

11. If all wheels go past the track border for more than 10 seconds, the trial is finished and a maximum time (2 minutes) would be recorded for this try.

12. An obstacle wall would be placed at the end of the track, the robot is supposed to stop before hitting the wall.

13. Your robot will be inspected on competition day.

Judging & Scoring

1. There will be 3 fixed tracks on the day of the competition.

2. All teams will gather at the competition area and remain there for the remainder of the round.

3. Judges will time and score your match.

4. All robots have 2 minutes to complete each track. If the robot is unable to complete the track within this time, a time of 2 minutes will be recorded for that particular trial.

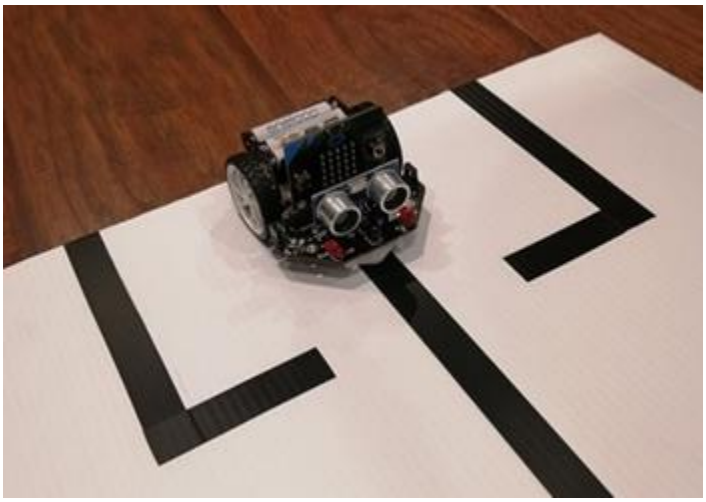
5. You will have 3 tries for each track and we will take the time of the best run. Note that if your robot spends more than 10 seconds away from the line or skips a significant portion of the track, that run will be awarded max time.

6. The winner of the Challenge will be determined by your robot's total completion time (i.e. sum of each run's time) and the mark you receive on the interview. The team with the highest combined score will be the winner of the Challenge.

7. Decisions of the judges are final.

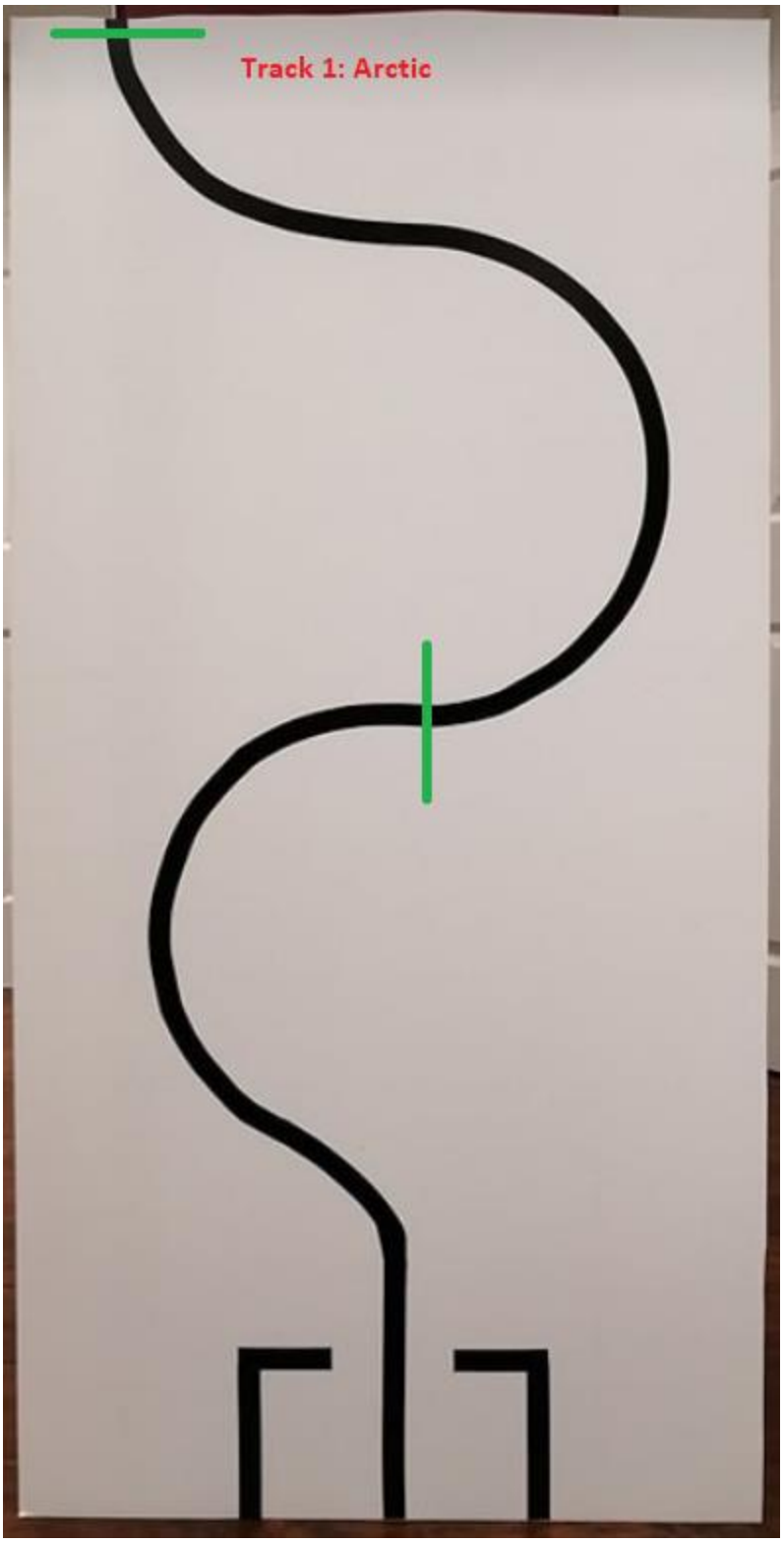
Animal Ambulance Challenge Starting Position

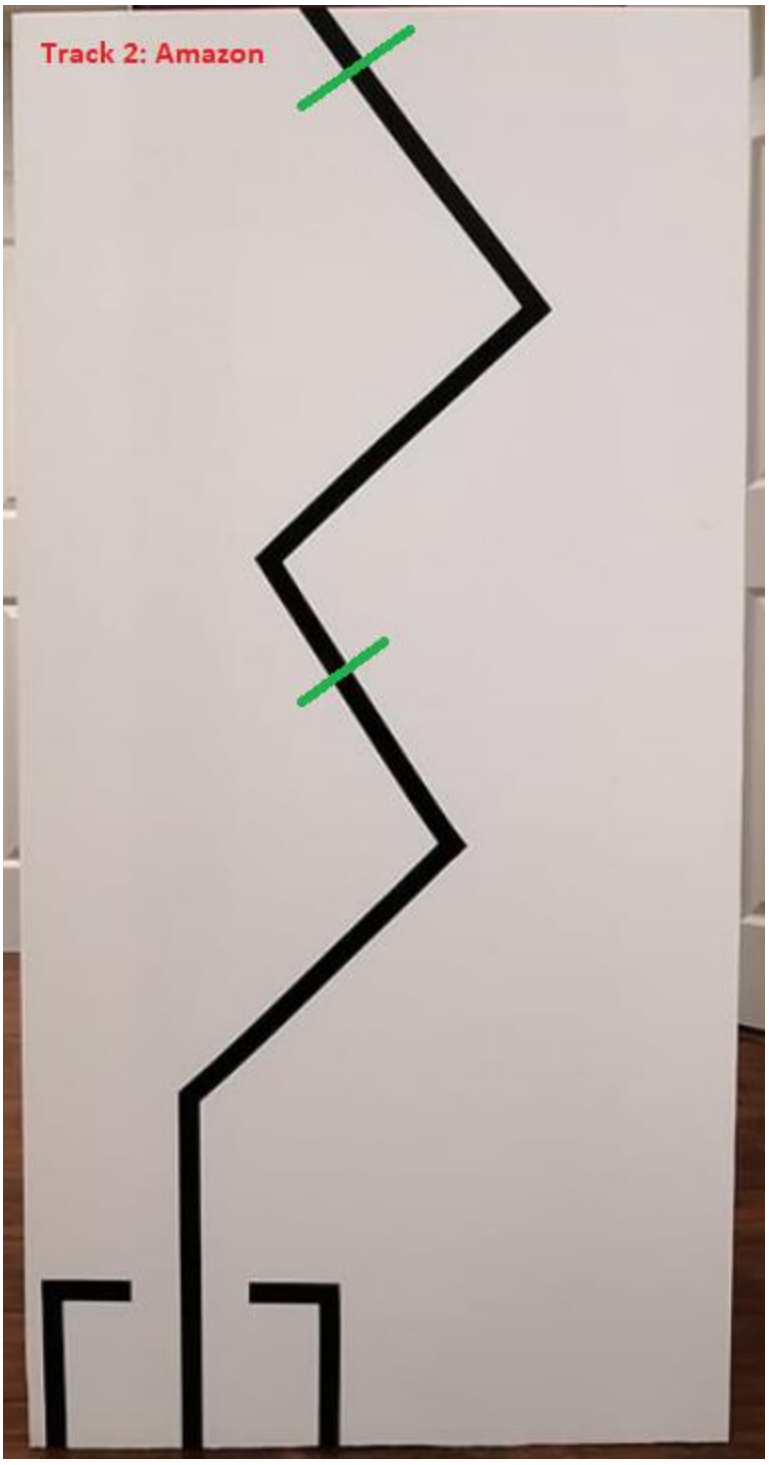
All robots will start in the start box. The dimension of the start box is 12cm x 20cm.

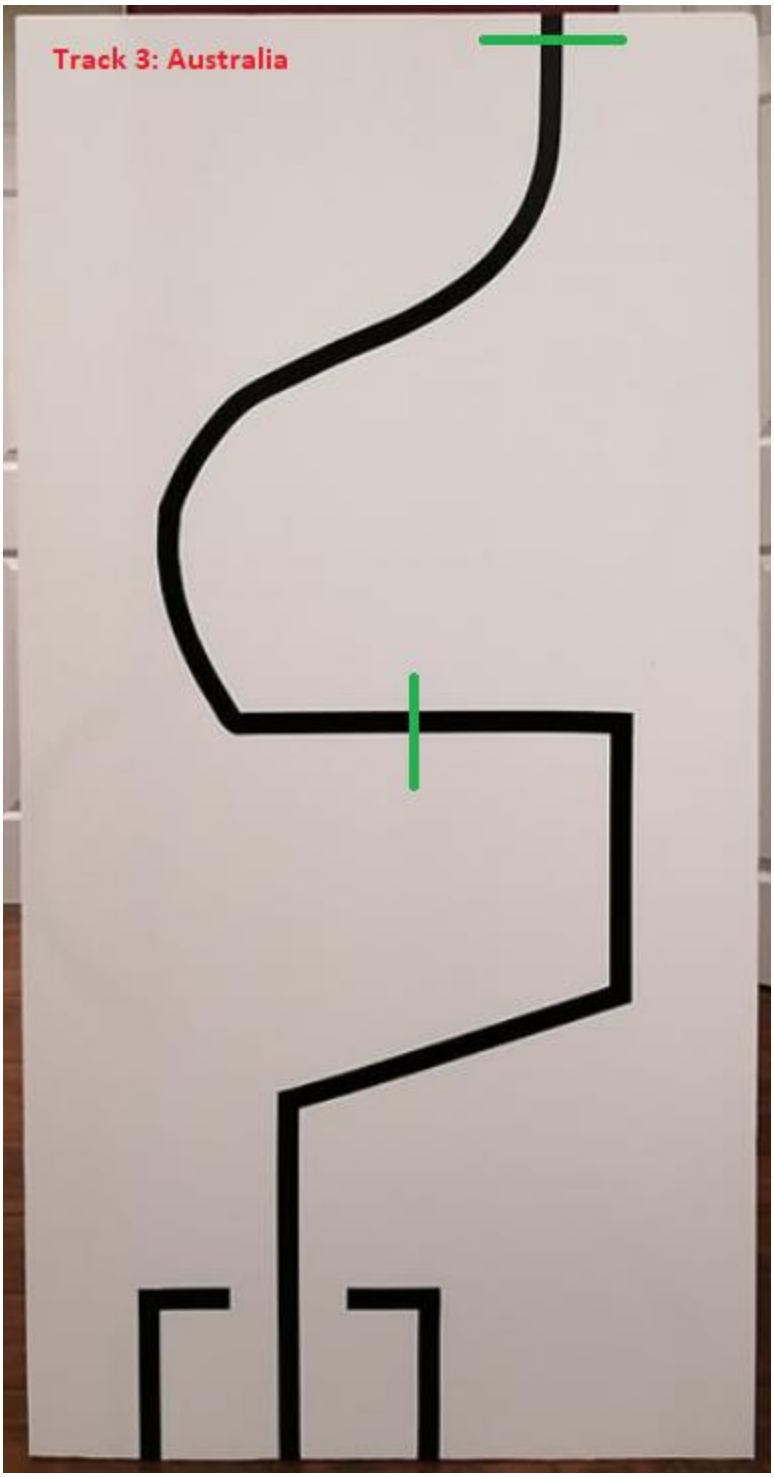


Animal Ambulance Challenge Diagram

The dimensions of each track area is 4' by 2'. The track will be represented by black electrical tape (¾"). The green lines in the diagram are approximately where the wall obstacles will be placed. Obstacles will have an approximate size of 6" by 6". Note that once robot stops at an obstacle, it will be removed and the robot should continue to follow the track line.


Track 1: Arctic


Track 2: Amazon


Track 3: Australia