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2016 MERCURY REMOTE ROBOT CHALLENGE

THE COMPETITION

The Challenge:
Design and build a robot to complete a set of missions

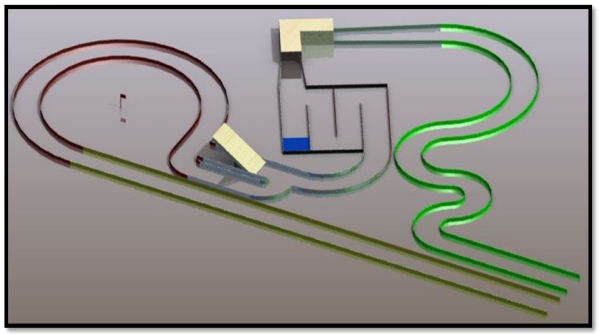
The Mission:
Navigate a predefined track with a variety of obstacles and propel a bean bag close to a define point.

Competition Rules:
The robot operator must be a least 50 miles from the competition site.

Scoring:

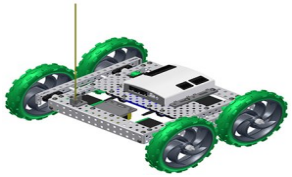
$$Score = \left(Tunnel + Pickup + Transit + \frac{70}{\sqrt{Sprint}}\right) * \left(\frac{72 - Dist}{144} + 1\right) - 3 * WC - 10 * RP$$

THE TRACK



THE ROBOT

Robot:
The chassis of the robot will be a 4 wheel drive as in that of a RC car



Sensors:
Ultrasonic sensors will be used for sensing the surroundings to avoid bumps and collisions.

Microcontroller:
An Arduino Yun with an embedded wifi controller

User Control:
An X-box controller will be used to control the actions of the robot.

Video Feedback:
For the video feedback, a surface pro tablet will be used.

Camera
A go pro camera will be used for monitoring the robot

Robotic Arm:
A robotic arm will be used to pick up the bean bag and propel to a desired point.