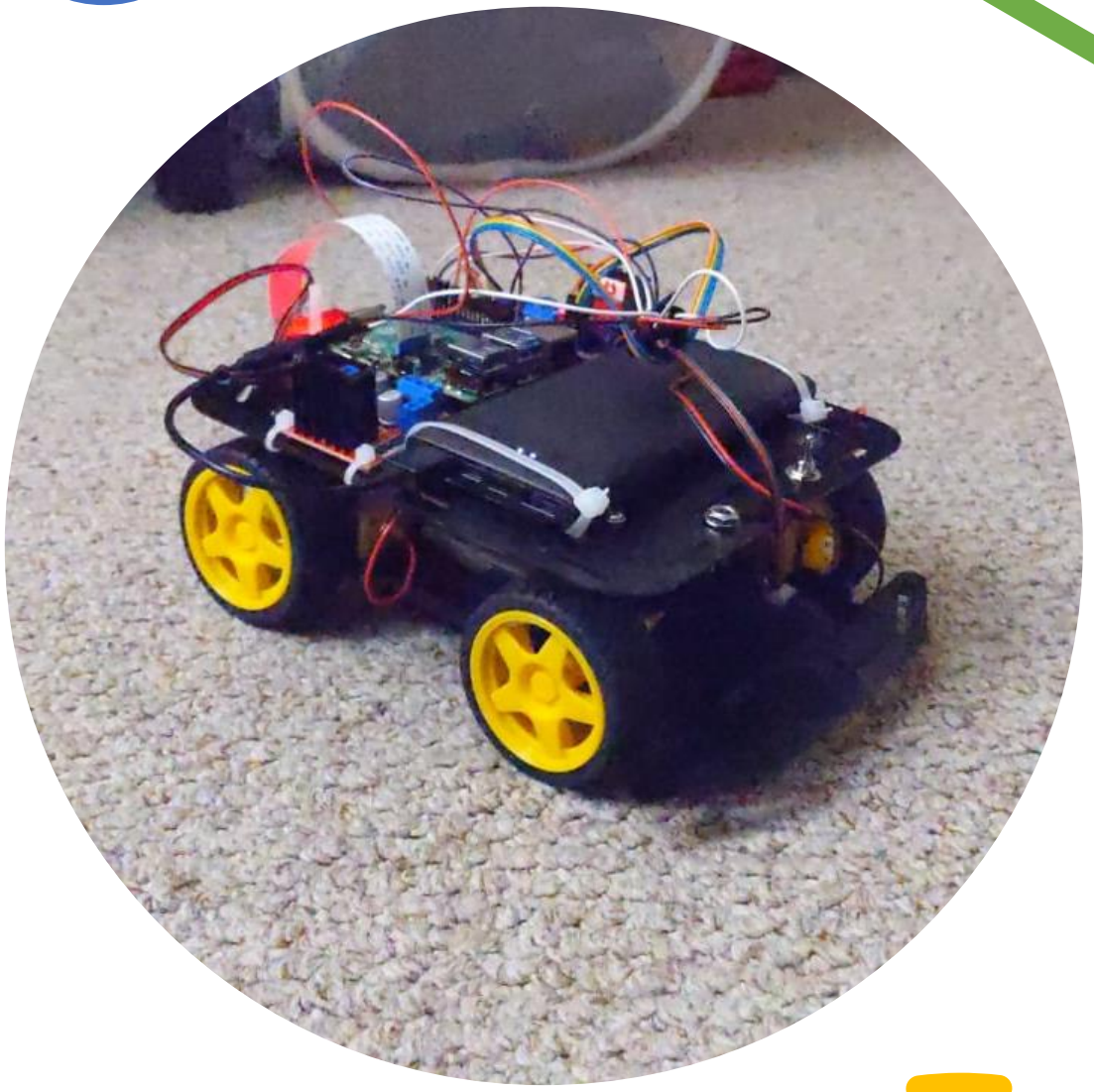

ENPM 809T

Interim Project Presentation

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What we are doing …

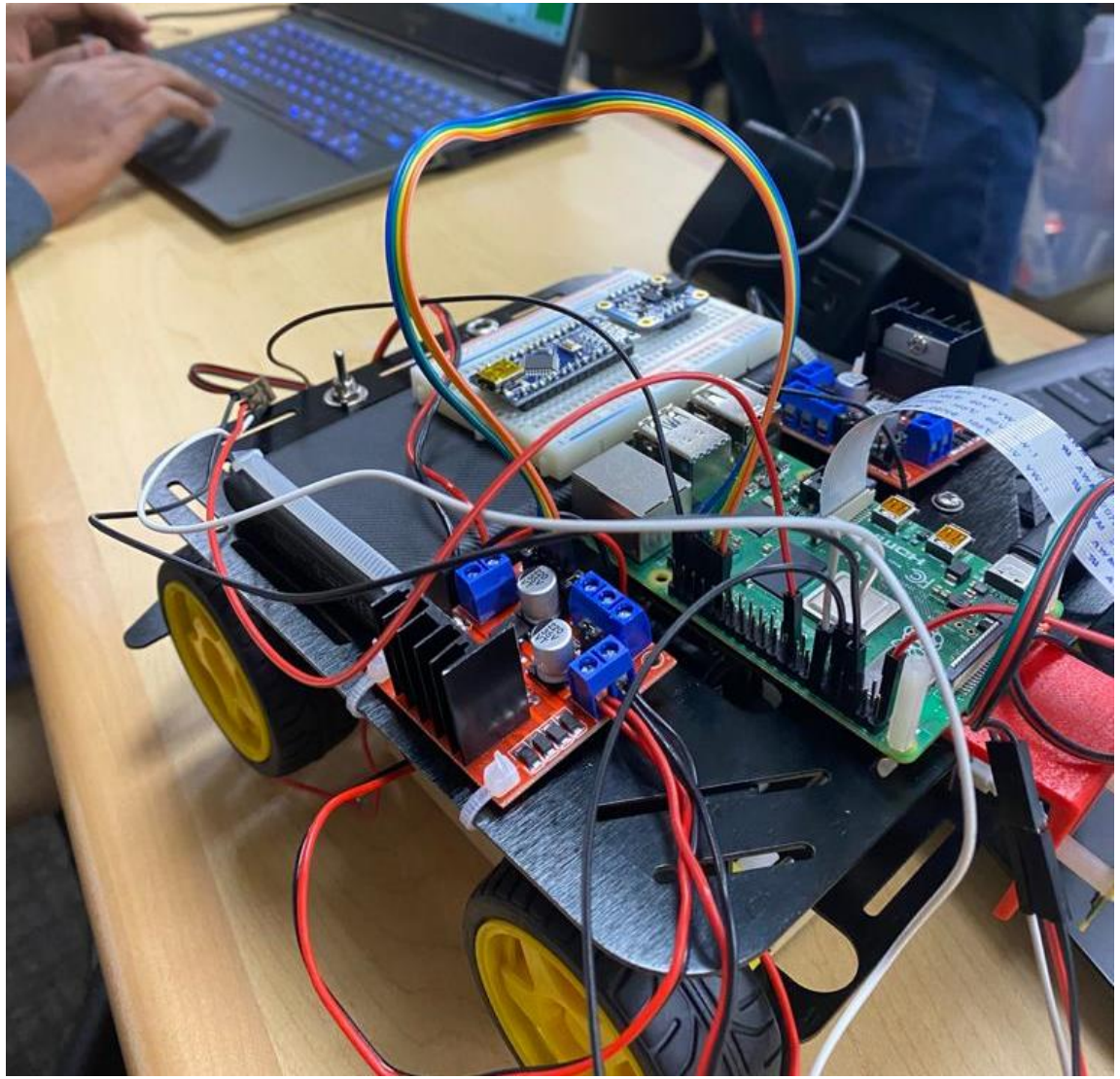
- The aim of the project is to build an autonomous ground robot using electronic and mechanical hardware provided for the course.
- The robot is controlled by a Raspberry Pi and connected to two motor drivers. The guidance is done by the data fed into the Pi from the Pi camera.
- The robot then takes part in a grand challenge, due to be held in the month of May that can navigate itself through an obstacle space and retrieve obstacles.
- The obstacles, which be of various color are brought back to a designated zone.
- This project started on January 27th ,2020 and is due by the month of May 2020.

Progress so far…

- So far, many assignments done in the class have helped in developing the robot.
- The robot has been constructed, from the given kit.
- The raspberry pi, pi cam, motor drivers, batteries, power bank, wheels and mounts have been assembled and the motors have been tested to work.
- The robot moves and can take user input to traverse through a path.
- The performance of the pi (thermally) have also been tested through the mode of various assignments throughout the first half of the semester.

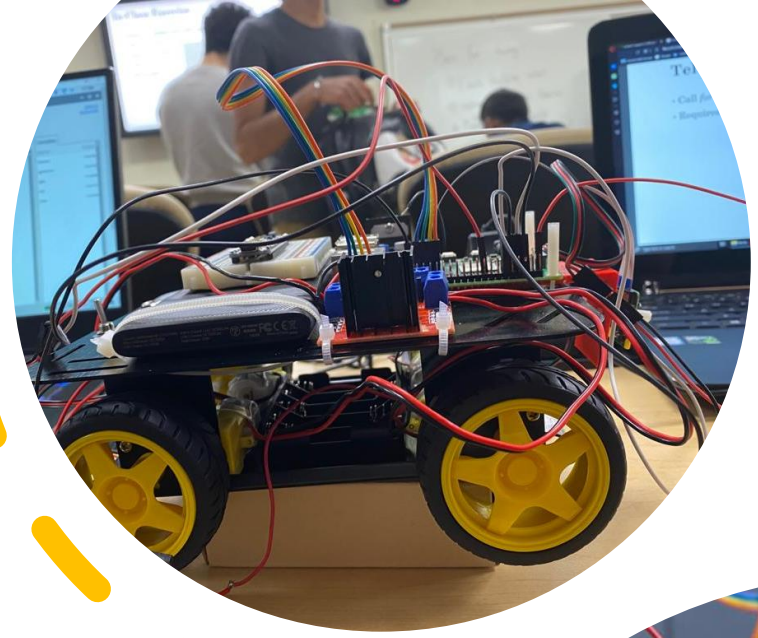
Pertinent Preliminary Data

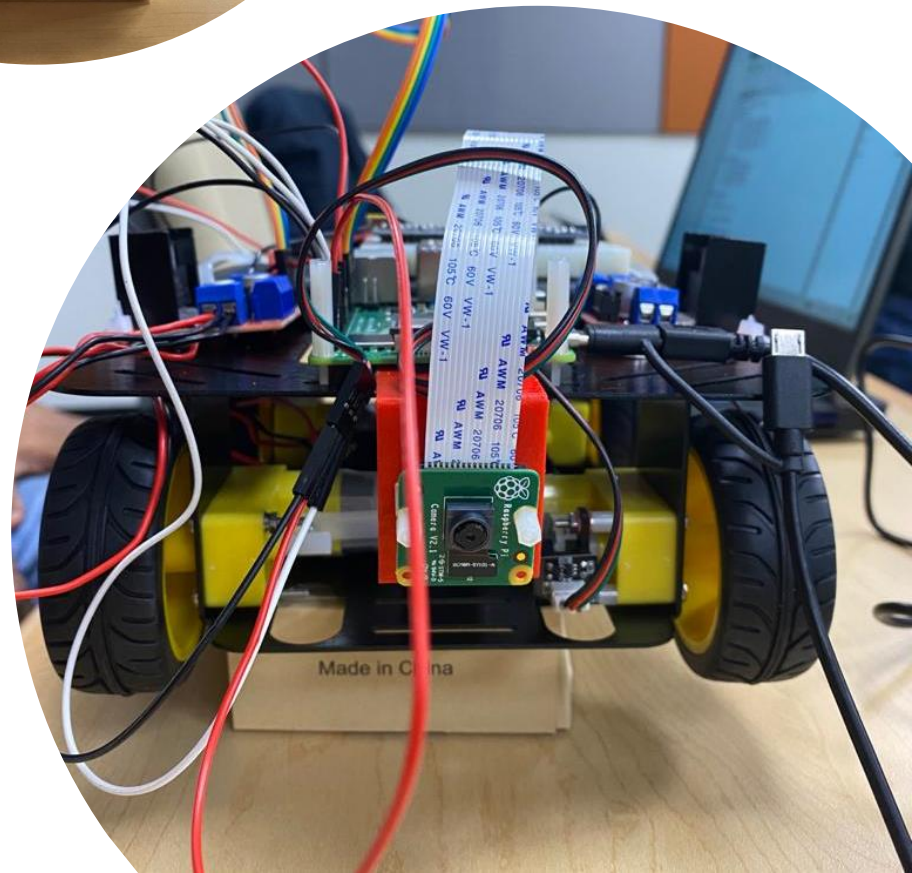
- We have data on the heating and performance of the pi upon load.
- We have calculated he HSV lower and upper range for green in one of the assignment.
- We have the voltage ratings for various pins on the pi.
- Minimum distance the ultra sonic sensor can measure, which can be sued during the measurement of the distance during the grand challenge.
- We also have the voltage data to drive the motors. (PWM – Pulse Width Modulation)



Plans Ahead

- The vehicle assembly is yet to be completed.
- The servos and the gripper are yet to be attached.
- The pi is yet to be programmed to work with the pi-cam and detect the objects during the grand challenge.
- The IMU, beacons and nano is yet to be inculcated into the project as well.
- Any future code that is necessary will be completed.
- The project will be tested exhaustively up until the grand challenge.





Requests to Dr. Mitchell

- The course has been a pleasure to attend and the work is challenging and educative.
- We wouldn’t want any changes from your end, however we believe this class is definitely better in person, than online.
- Hence, we look forward to physically attending the classes, rather than building our robot at home, or elsewhere.