Final Project Proposal - PerceptoBot
ECE558-Fall 2018

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Description

We are making a 2-wheeled robot that will be controlled via an Android app using movement sensors (accelerometer and gyroscope) on the phone.

Hardware

We will be using a robot chassis to mount a Raspberry Pi 3 B+, a Pi Camera module (for stretch goal), 2 wheels, a motor driver, 2 DC Motors, and a battery pack. The Raspberry Pi will run Raspbian and Python on it to control the robot and interface with the app.

Software

We will design an Android app that will sense the user input via the included movement sensors (accelerometer and gyroscope) and forward the data to Firebase, which will then move the robot. When the device is tilted left, the robot will make a left turn. Similarly, when the device is tilted right, the robot will turn right.

Design Approach

Mrunal – Android app and Firebase Integration
Shubham – Hardware side and robot movement

Out-of-time-options

In case, we cannot get motion sensing done, we will control the robot using buttons on the android app.

Stretch Goals

- Stream video from Pi Camera mounted on robot to the Android app so that the user can navigate without having a line-of-sight to the robot.
- Use the camera to detect faces and follow the movement of the faces.

Milestones

Thursday 15 Nov 2018 – Assembled robot
Thursday 22 Nov 2018 – Robot controlled via app
Friday 23 Nov 2018 to Tuesday 27 Nov 2019 – Break for Final Exams
Wednesday 5 Nov 2018 – Stretch Goals