Chris David

Master Project Proposal

For my Master’s project I will be creating a Robot with a Raspberry Pi 3b computer board and essentially be creating a robot that listens to the user’s input. Overall this project is going to convert the digital signal that the user inputs and have the robot output physical movement. The robot will simulate the relationship between digital and physical I/O that users interact with in daily life. This robot will be enclosed into a maze and the user will need, via app on the phone, to tell the robot how to move. On the app there will be options to see what the robot is looking at (via mounted camera on robot) as well as buttons to allow the robot to move in the basic 4 directions.

The robot will “listen” or obtain signals via the Wi-Fi dongle on the board from the user’s phone. In this case the robot will be listening to the movement buttons on the app. After getting a input from the on-screen buttons, the app will convert button press to a raspberry pi command that will in turn cause a physical change on the board. In this case it will turn a server motor on or off essentially.

I will be, after getting the robot to fluidly move, add another robot to “chase” the player controlled robot. This robot will be following commands off a database, random movements or cloning the player’s movements. This will be done in order to fulfill the database portion of the Master’s Project guidelines (unless told that I need to think of something else). I will be programming in the Raspberry Pi environment, in which, I will develop an android based app that will be the “controller” for the robot.

If both portions of the project are done successfully, the last portion will be to develop a VR simulation for seeing what the robot sees via the Raspberry Pi camera that is attached to the robot. Using the Google VR SDK, along with a google cardboard, I should be able to allow users to get a first-person view of what their robot sees.

In conclusion hopefully the robot will exemplify the relationship between digital, electronic signals that are created by the code, generated by the user button press, and have it translate into physical signals that affect physical components.

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|  | *Item* | Amount | Cost |
|  | *Pi2Go-Lite Fully Integrated Robot Kit w/ Raspberry Pi included* | 2 | £201.00 or $222.29 USD |
|  |  | *Total* | 222.29 |