

Report

Items purchased:

Arudino Mega

Arduino Uno

Car kits with 9 motors

4* ultrasonic sensors

Buzzer

H-Bridge

Raindrop sensor

7 Segement common cathode

Servo motor

Water level sensor

Radio recieivr sensor (Tea5767)

Speaker

Lcd tft with touch screen

Features

FI

- We used the raindrop sensor to detect drops of water that in turn cause the servo to move 180 degrees in two directions thus cleaning the wind shield.
- We used the water level sensor to measure the level of the water in the tank by submerging the sensor in the water and displaying the result on the 7 segment using 0 to represent an empty tank and 1 to represent a half-filled tank and 2 to represent a full tank.

RS

- We used the radio sensor to access channels using the touch screen to turn the radio on and off, change and display the channel being accessed at the moment.

APA

- We built the car kit and connected the car motors to the H-bridge to transition to forward and backward motion smoothly and then implemented methods such as, but not limited to, `backward()` and `right()` and used those methods with the aid of 3 ultrasonic sensors, (front, backRight, back) so that the car is able to autonomously park using the readings generated from those sensors and finally the buzzer was added so that an audible warning was in place to fully enhance the experience.

Challenges

We faced some problems during the process:

Challenge: Hardware present at electronic stores was of a poor quality causing precision errors in the reading and in the overall functionality of the feature.

Solution: We didn't find a particular solution to this problem however we bought items that we thought of as a decent quality and hope for the best.

Challenge: Libraries imported had compatibility issues with the component bought and older and Solution: Numerous changes were done to the imported library for the hardware to be compatible with the library imported.

Challenge: Components were missing from fritzing such 2.4" lcd tft screen and the radio sensor Tea5767.

Solution: we searched a lot of time for these components however our trials weren't successful and in the end we decided that we will add these components as sticky notes with the pins laid out to be clear as possible