Embedded Systems Final Presentation

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Problem

- The motion-sensing robot, ASMR, is an implementation of two inputs and two outputs.
- No specific problem to be solved, but the robot allows for users to see how certain functions work.
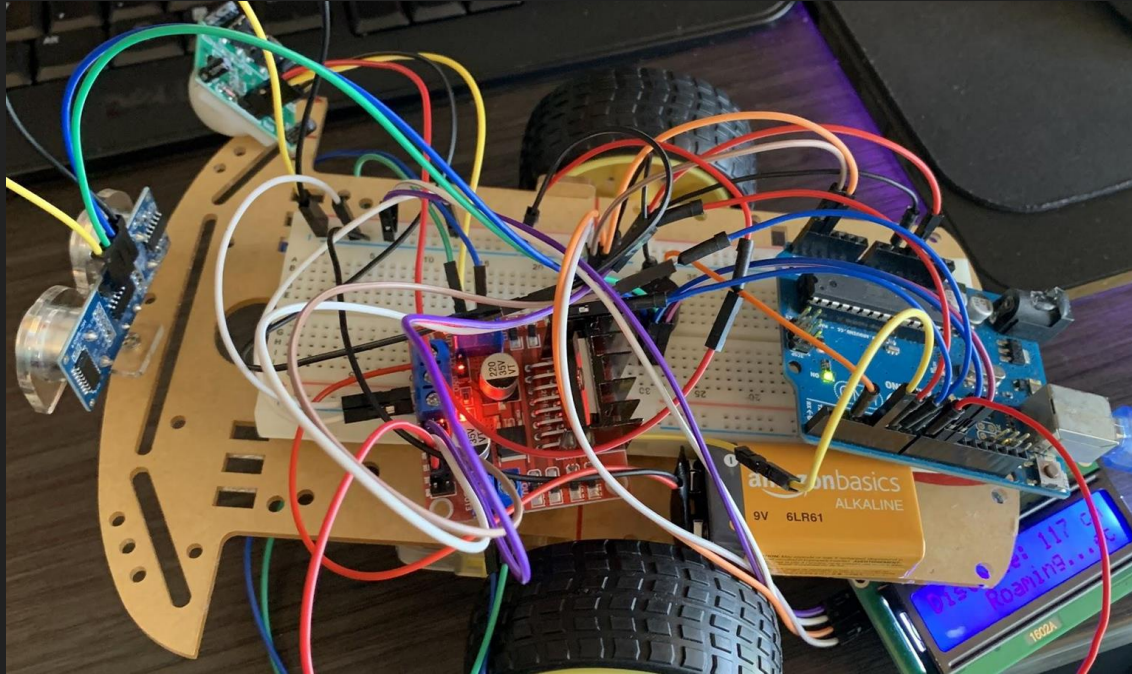 - Measured distances
  - Motion detection

Circuits

- Note: this is a mockup of the wired circuit (couldn't find all components on TinkerCAD)
  - LCD Module uses I2C serial interface adapter
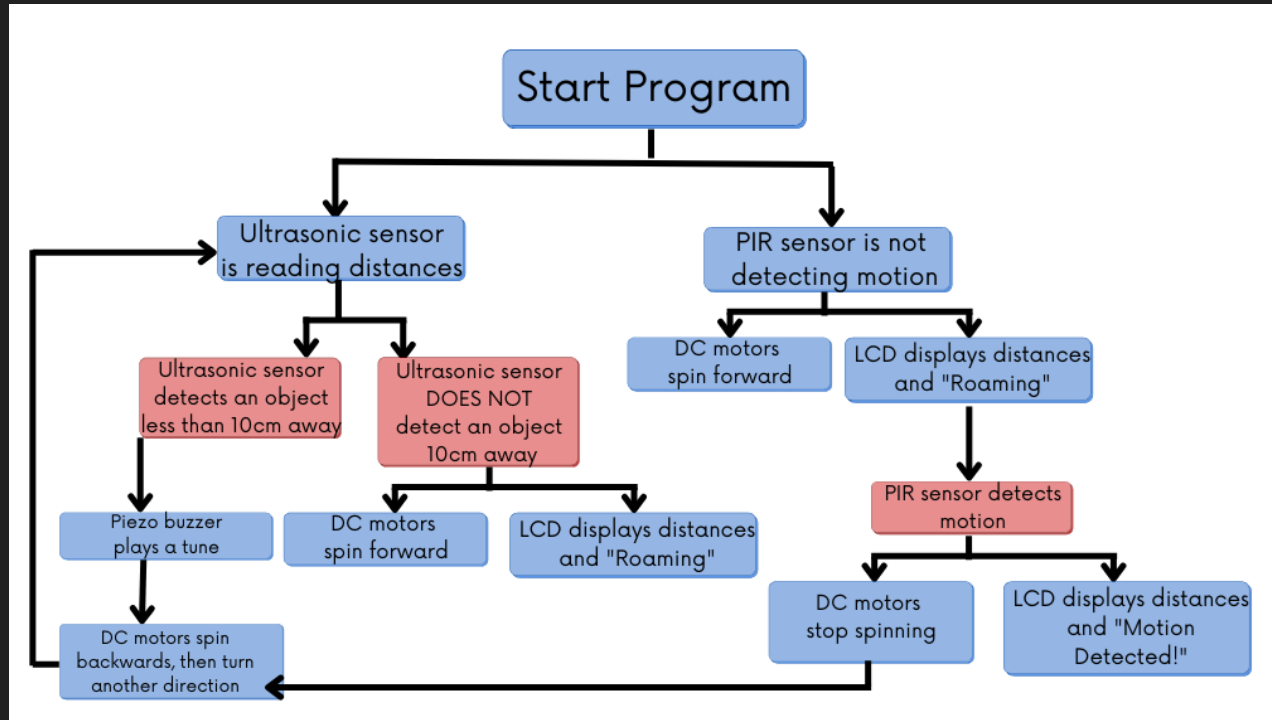 - DC motors connected via L298N motor driver and use 9V power supply
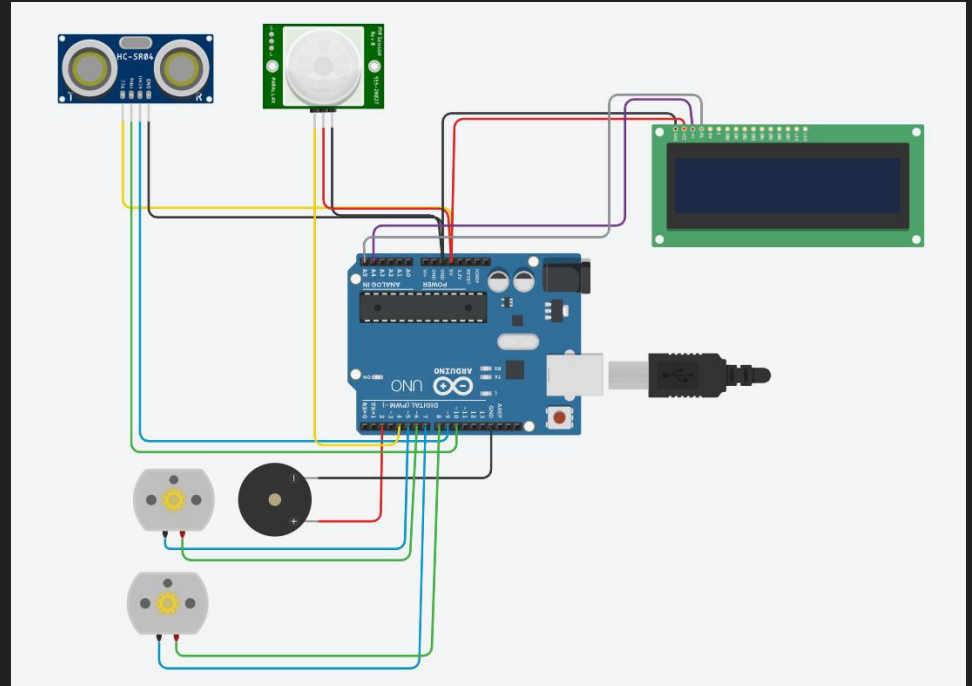
Circuits

- Actual circuit on breadboard

Pseudo-code Flowchart

Demo

Results

- The requirement of 2 inputs and 2 outputs interfaced was satisfied
  - Ultrasonic sensor is interfaced with buzzer and LCD module
  - PIR sensor is interfaced with LCD module
- Ultrasonic Sensor
  - Buzzer plays a tone when an object is less than 10 cm away is detected
  - Distances are displayed on LCD module
- PIR Sensor
  - Displays "Motion Detected!" on LCD module if motion is detected in front of sensor

Conclusion

- The project was able to implement and interface two inputs and outputs, thus fulfilling requirements.
- Logic for DC motors was coded in final program and the motors should work, in theory.
  - Issues due to motors themselves, not with code
    - Troubleshooting was done by making a simple program that controls the DC motors - DC motors were unresponsive.

Any Questions?