Project #1 Report

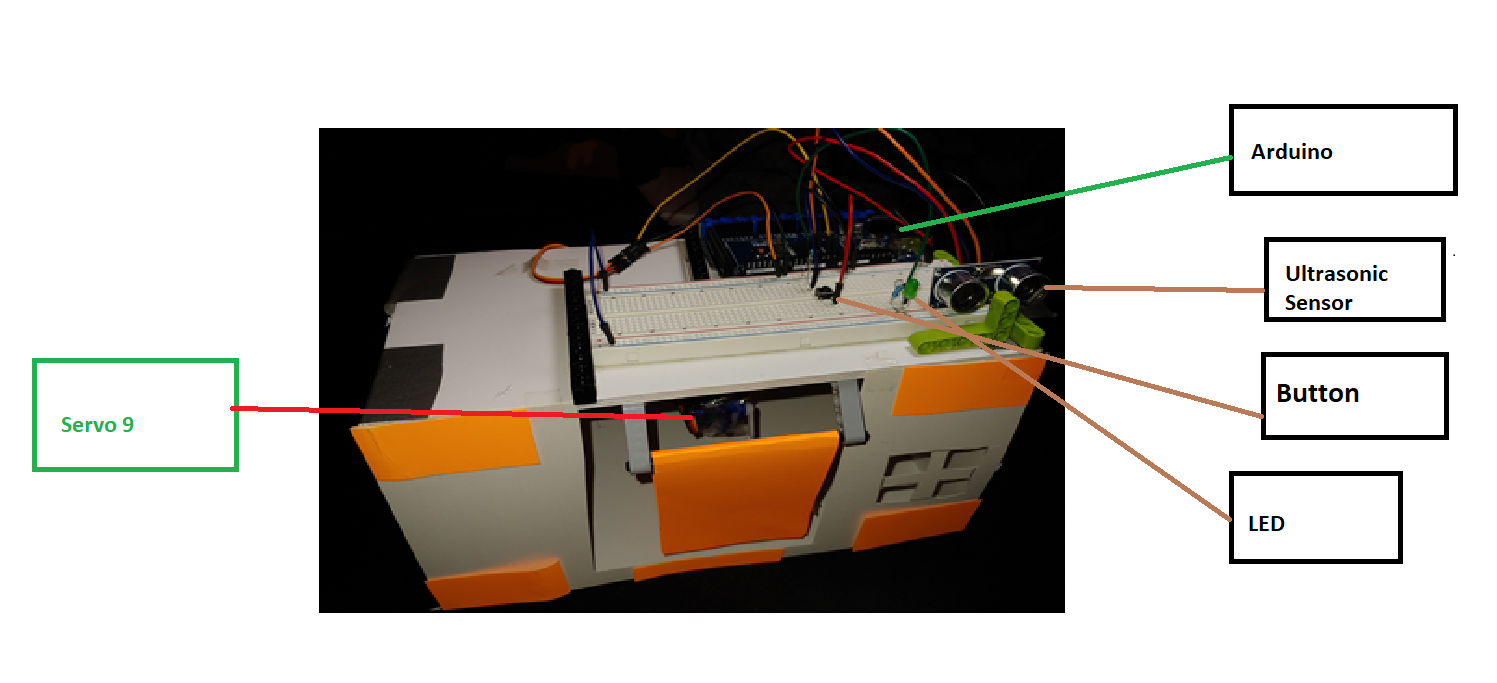
ECE 4320

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**Objective:**

Build and design an automatic door by using Arduino. The door opens automatically by ultrasonic sensor detecting a person standing closer than 0.05m. The LED will turns on whenever the ultrasonic sensor detects a person 0.15m away from the door, and it remains ON until the door closes.

**Design:**

**Servo 9:** The motor that mechanically opens and closes the door

**Ultrasonic Sensor:** The electronic device that measures the distance of a target object by sending ultrasonic sound waves.

**Button:** This function is to open and close the door manually.

**LED:** The LED turns on and off whenever the door is opened or closed.

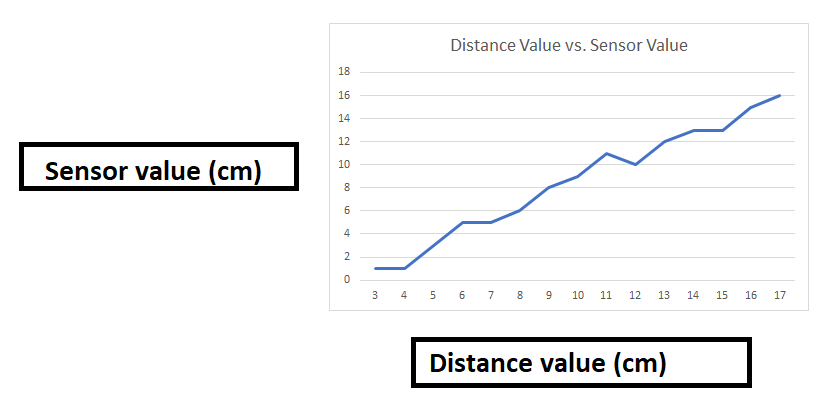
Using distance calculation,

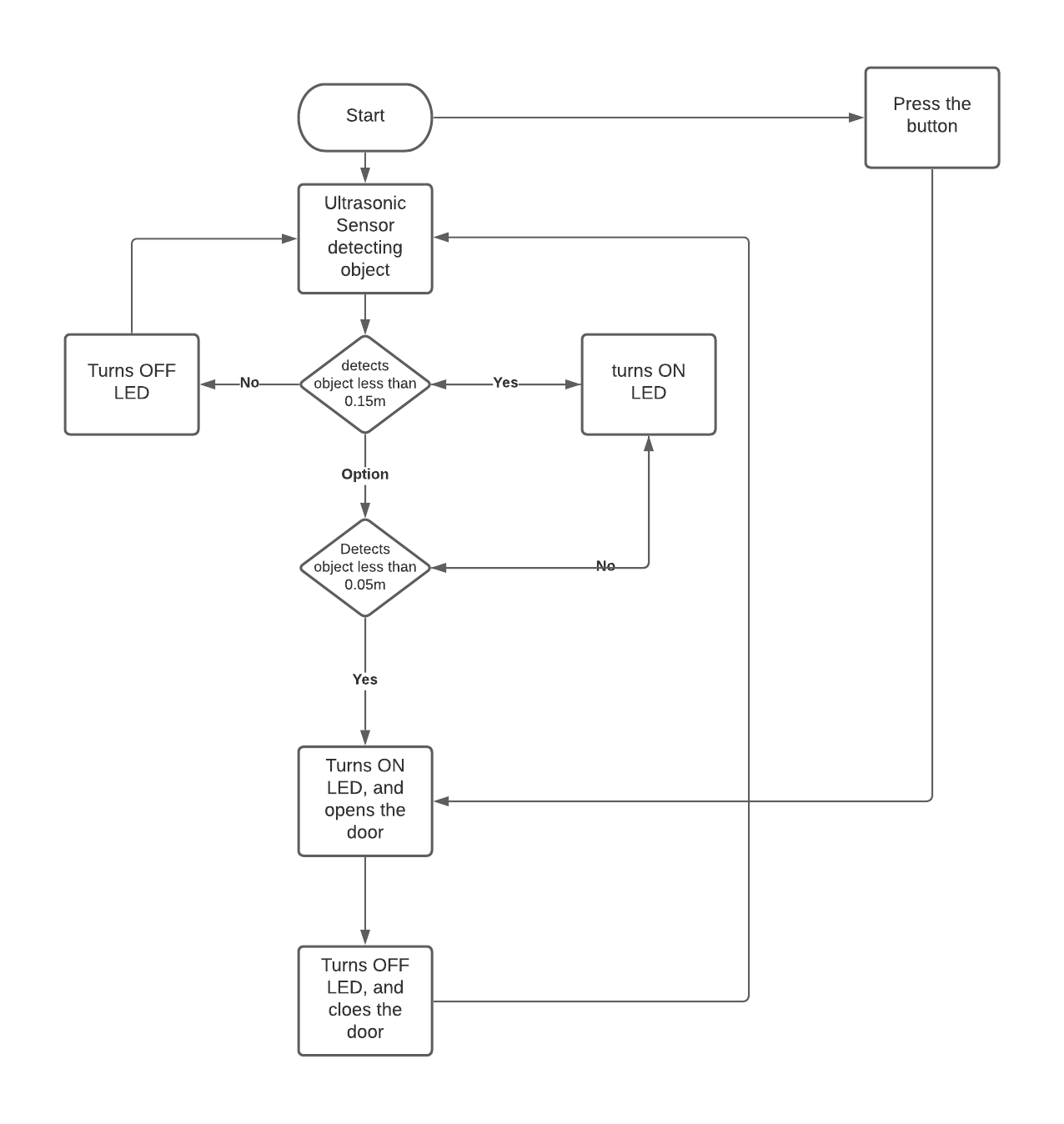
Travel\_distance = speed \* travel\_time

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Travel distance = 0.017 \* pulse\_duration

The servo 9 can opens a door and turns on LED when a person stands closer than 0.05m to the door. When a person stand is 0.15m from the door, a light is turned on and remains on, as long as the door is open.



Flowchart: