Obstacle Avoiding Arduino Car:

A car which can avoid obstacle automatically

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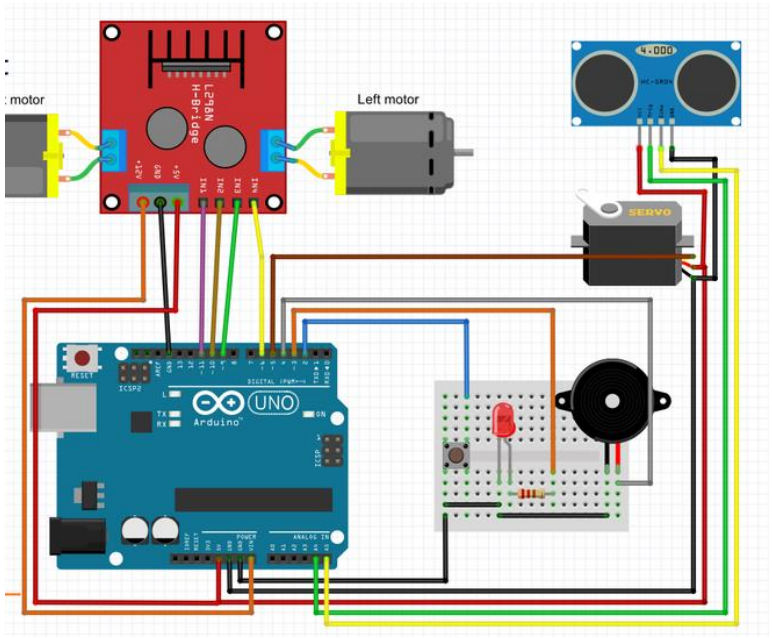
Components	Come from…
Arduino Board	321 Maker Kit
Mini breadboard	Maker space
L298 motor driver module	banggood.com
2x dc motors with wheels	banggood.com
HC-SR04 ultrasonic sensor	banggood.com
Micro servo motor	321 Maker Kit
A Button , a LED, a buzzer	Maker space
220 Ohm resistor	Maker space
Battery holder and battery	banggood.com
Car chassis	Thingiverse, Maker space

Future Expansion

Network Control App

Cleaner



Battery and Battery Holder

HC-SR04 Ultrasonic Sensor

Arduino Leonardo

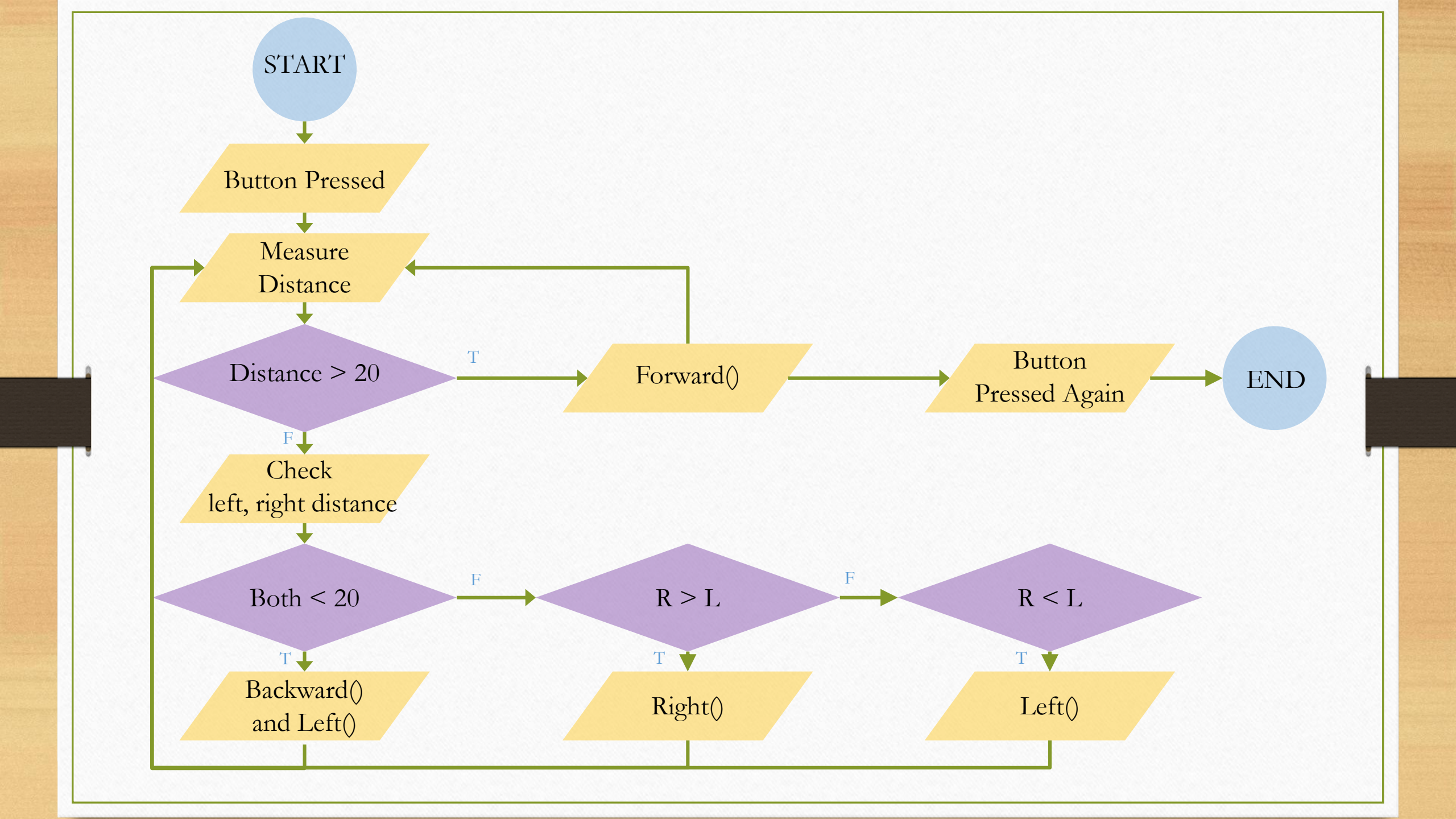
Mini Breadboard

LED

Buzzer

L298 Motor Driver Module

Motor with Wheel


START
Button Pressed
Measure Distance
Distance > 20
T
Forward()
Button Pressed Again
END
F
Check left, right distance
Both < 20
F
R > L
F
R < L
T
Backward() and Left()
T
Right()
T
Left()

Desired goals steps taken

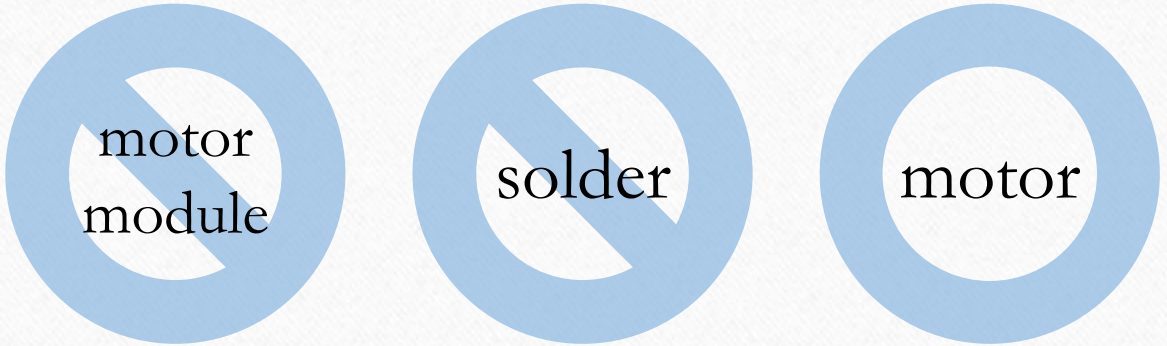
1. Test
   - sensor, motor, servo
2. Assemble
   - Issue: the speed of two motor is different
3. Programming
   - Issue: Library

Problems Overcame - Library

- Error 1
  - Error message: don't have a class (ranging) in installed library (ultrasonic.h).
  - Find out the reason: the library I installed from the list in IDE either outdated or we might get the wrong one. Gabriel_swe said: "I would say it is quite rare a library is released with the same name as an already existing name, but in this case it exists.“
  - Take action: Install the new, correct library from the place that ITead offered.
- Error 2
  - Error message: already have the same library(, so I can't import the new one.)
  - Find out the way: stackoverflow said I have to remove the whole library file from the computer.
  - Take action: No Grabbing said, "Your Arduino library folder should look like this: My Documents\Arduino\libraries\ArduinoParty\."
- Error 3
  - Error message: "WProgram.h: No such file or directory."
  - Find out the reason: HazardsMind said, "You have to go into the .h and .cpp files and change "WProgram.h" to “Arduino.h."

Problems Overcame - Motor

- Issue:
  the car went in circle repeatedly



- Take action:
  modify the code.

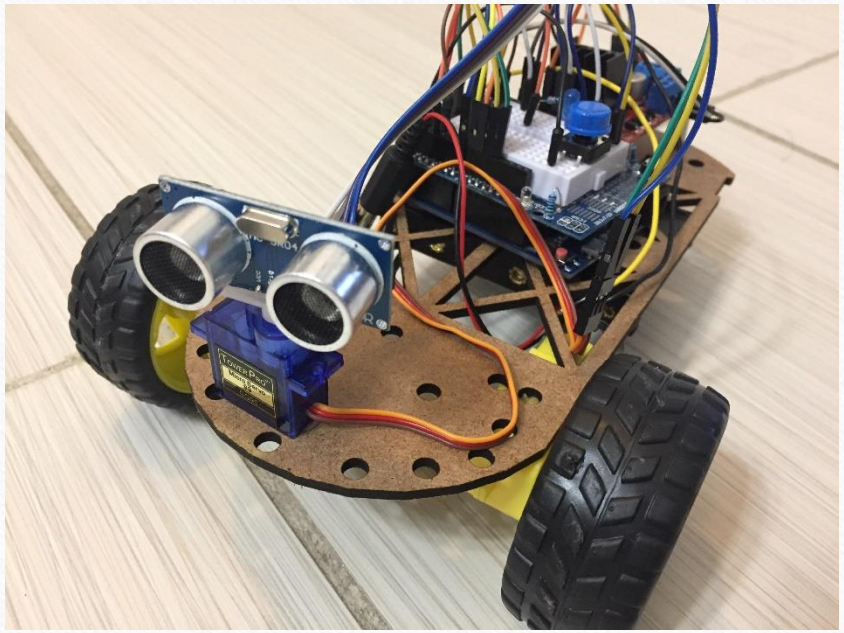
```
digitalWrite(motor, HIGH)
digitalWrite(motor, LOW)
```

```
analogWrite(motor,255)
analogWrite(motor,0)
```

HOW TO CHANGE THE SPEED OF A DC MOTOR WITH THE ARDUINO

- Problem Overcame 1: Enough power (for sensor)
- Problem Overcame 2: Change all functions together,
  including forward(), backward(), left(), right()…

Future Expansions: Automotive Cleaner



THANK
YOU