Making Circuit Ready

Assuming that you have completed all the installation steps from the files in *Making_RPi_Ready* folder, you have to make the circuit to connect RPi3 with Arduino Nano, L298N motor driver, DC motors, Standard & Micro Servo motors, Line Sensor and Buzzer.

1. Connections between RPi3 and L298N are as follows:

L298N motor driver	RPi3
EN-A	Pin 37
IN1	Pin 33
IN2	Pin 35
IN3	Pin 36
IN4	Pin 38
EN-B	Pin 40
+5V	Pin 2
GND	Pin 39

2. Connection between DC Motors and L298N are as follows:

Motor1 and Motor2	L298N
M1 (Motor1)	OUT1
M2 (Motor1)	OUT2
M1 (Motor2)	OUT3
M2 (Motor2)	OUT4

3. Connect Li-Ion battery, RPi3 & L298N as per table below:

L298N	Connected to
12V	12V (Li-Ion)
GND	GND (Li-Ion & RPi3-Pin 6: GND)
5V	RPi3-Pin 3 (5v)

Once all the connections are done, it will look like the image given below in figure 1:

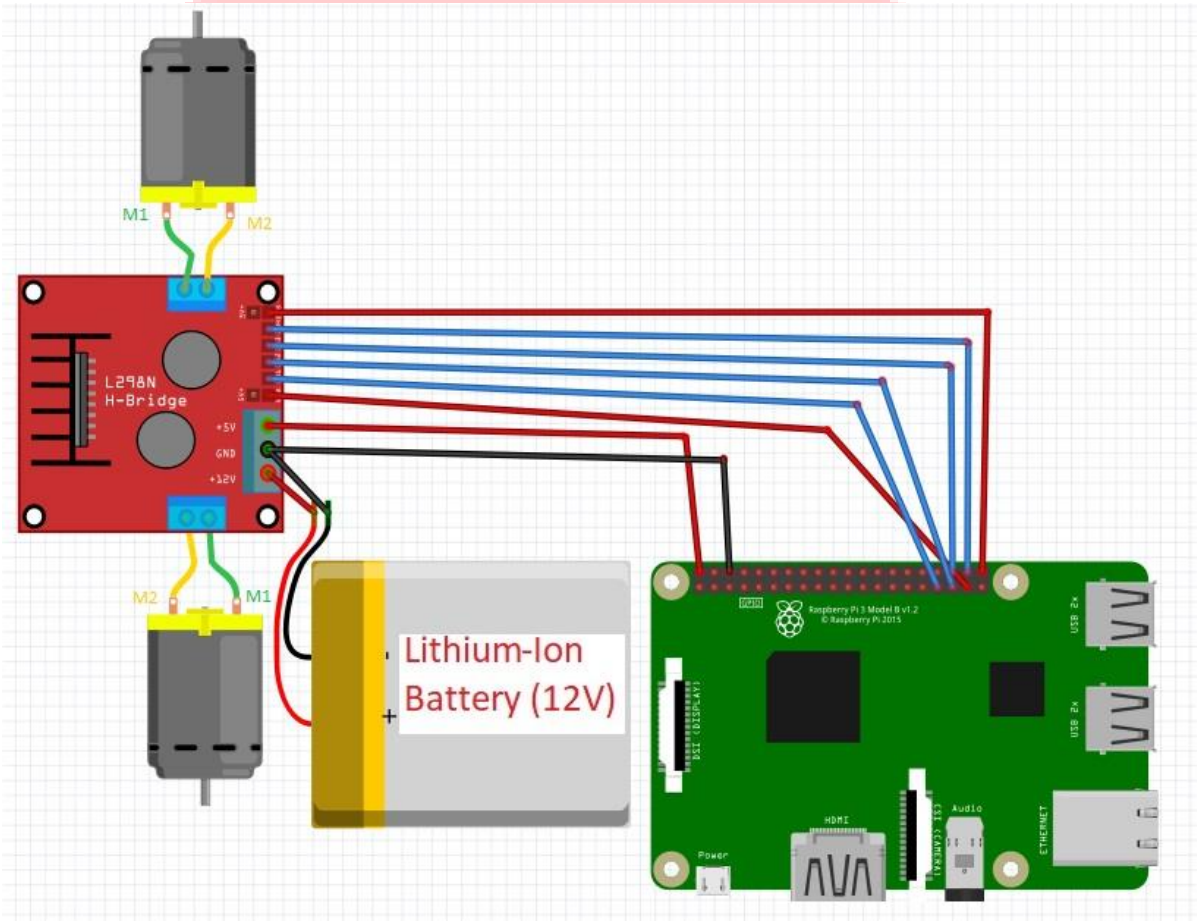

Figure 1: Connecting Rpi3 with motors & L298N

4. Connections between Arduino Nano & Standard Servo motors are as follows:

Arduino Nano pin	Standard Servo pin
D3	Data Pin (White)
GND	Ground Pin (Black)
5V	VCC Pin (Red)

5. Connections between Arduino Nano & Micro Servo motors are as follows:

Arduino Nano pin	Micro Servo pin
D6	Data Pin (Orange)
GND	Ground Pin (Brown)
5V	VCC Pin (Red)

6. Connections between Arduino Nano & Line Sensor are as follows:

White Line Sensor Pin	Arduino Nano/Potentiometer Pin
1	Arduino (A0)
2	Potentiometer (Variable end)
3	Arduino (A2)
4	Potentiometer (Variable end)
5	Arduino (A4)
6	Potentiometer (Variable end)
15	Arduino GND
16	Arduino GND
17	Arduino GND
18	Arduino GND
19	Arduino 3V3
20	Arduino 3V3

Once all the connections are done, it will look like the image given below in figure 1:

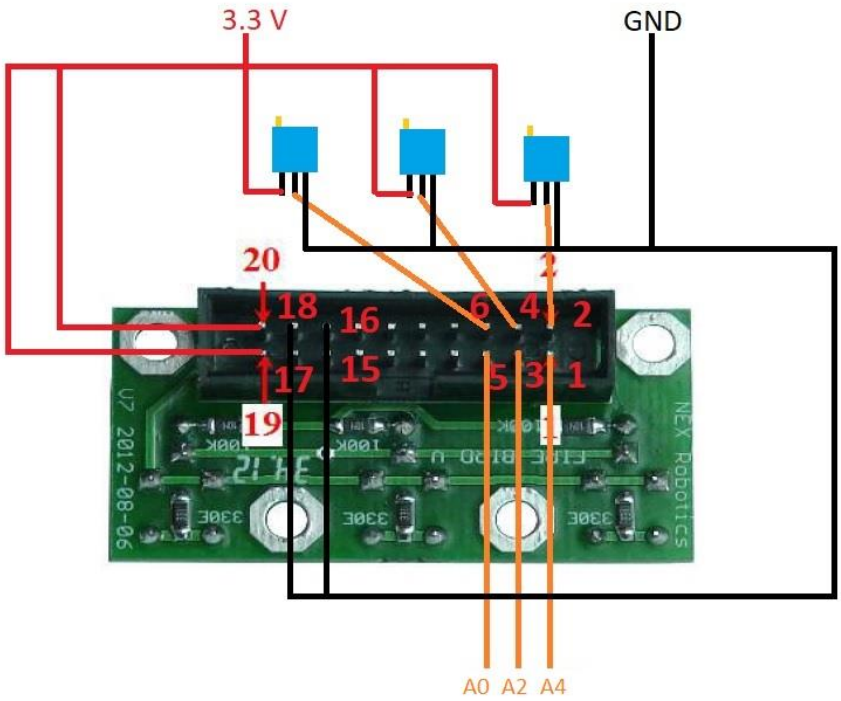

Figure 3: Connecting Arduino Nano & Line Sensor

7. Connections between Arduino Nano & Buzzer are as follows:

Arduino Nano pin	**Buzzer pin**
5V	VCC
D13	I/O
GND	GND

Once all the connections between Arduino Nano, Standard and Micro Servo, Line Sensor and Buzzer are made, final circuit should look like below:

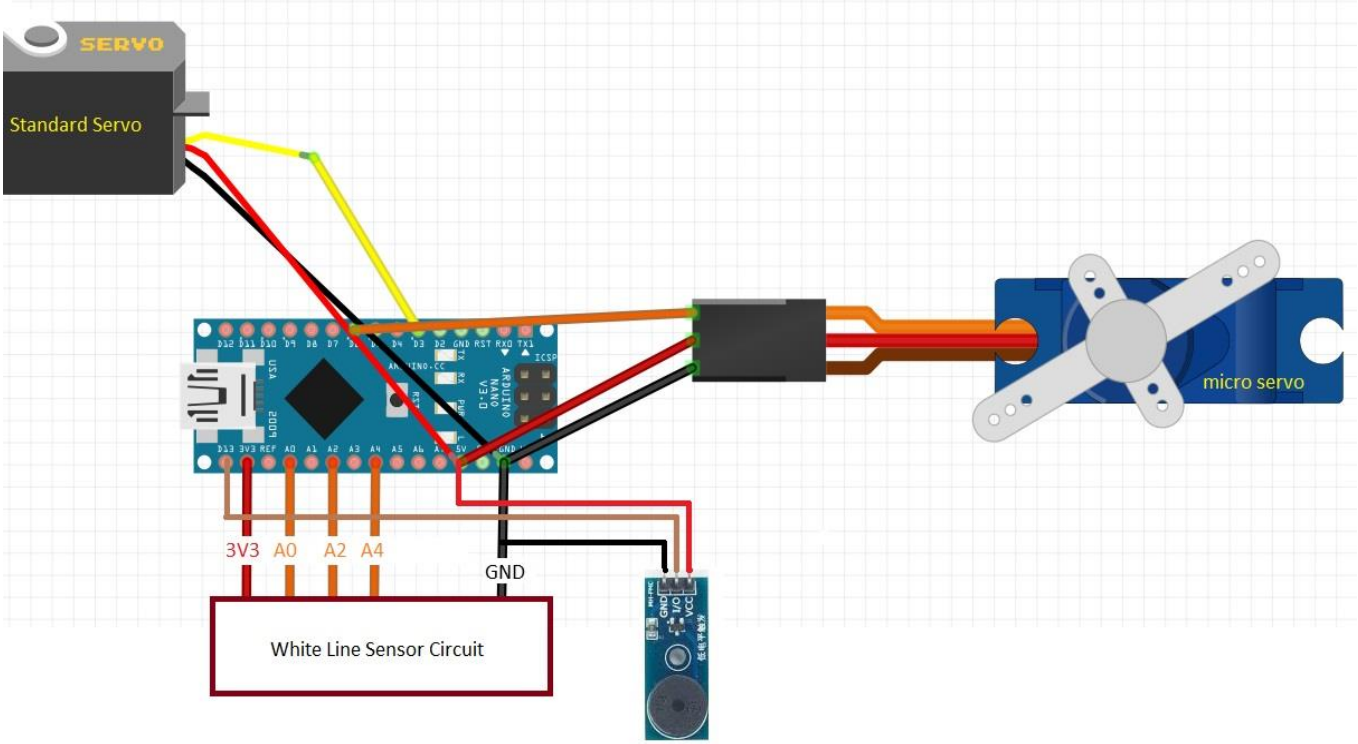

Figure 4: Connecting Arduino Nano, Standard and Micro Servo, Line Sensor and Buzzer