

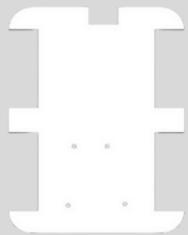


TECHNOLKAR

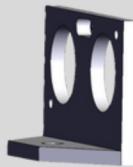
ULTRASONIC BASED SELF DRIVING CAR



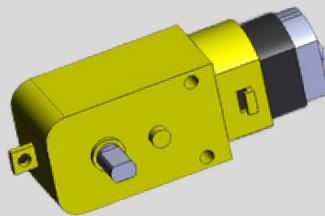
Components Required



Chassi



ultrasonic holder



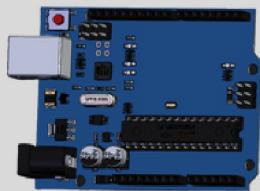
gear motor x 4



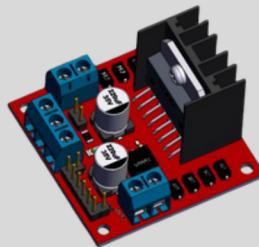
tyre x 4



battery holder



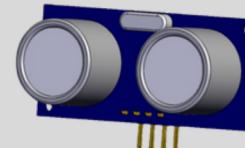
Arduino Uno



L298N motor driver



servo motor



Ultrasonic sensor



li-ion battery



Arduino Data Cable



Wire Stripper



Wire Stripper

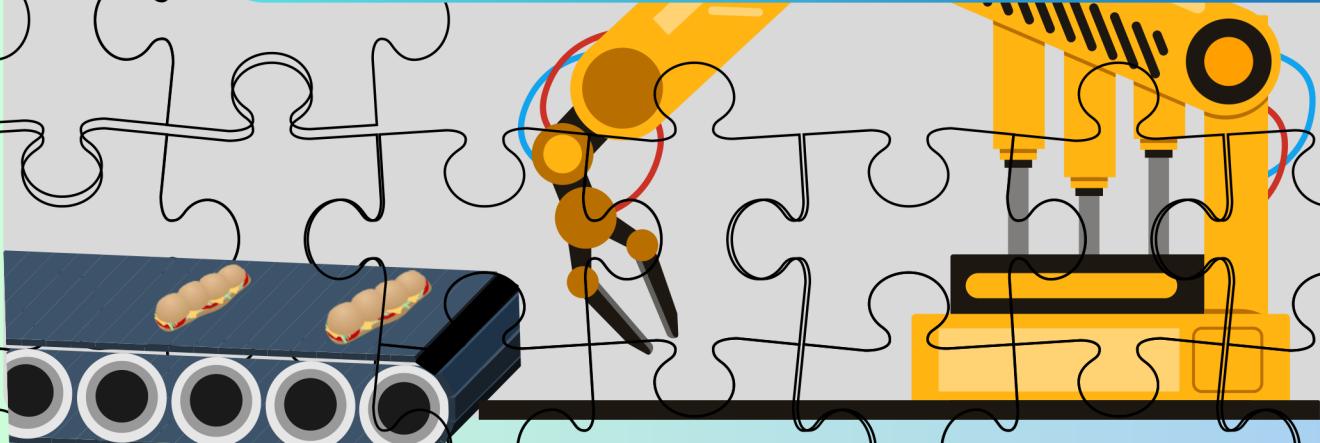


Soldering gun
and soldering
wire

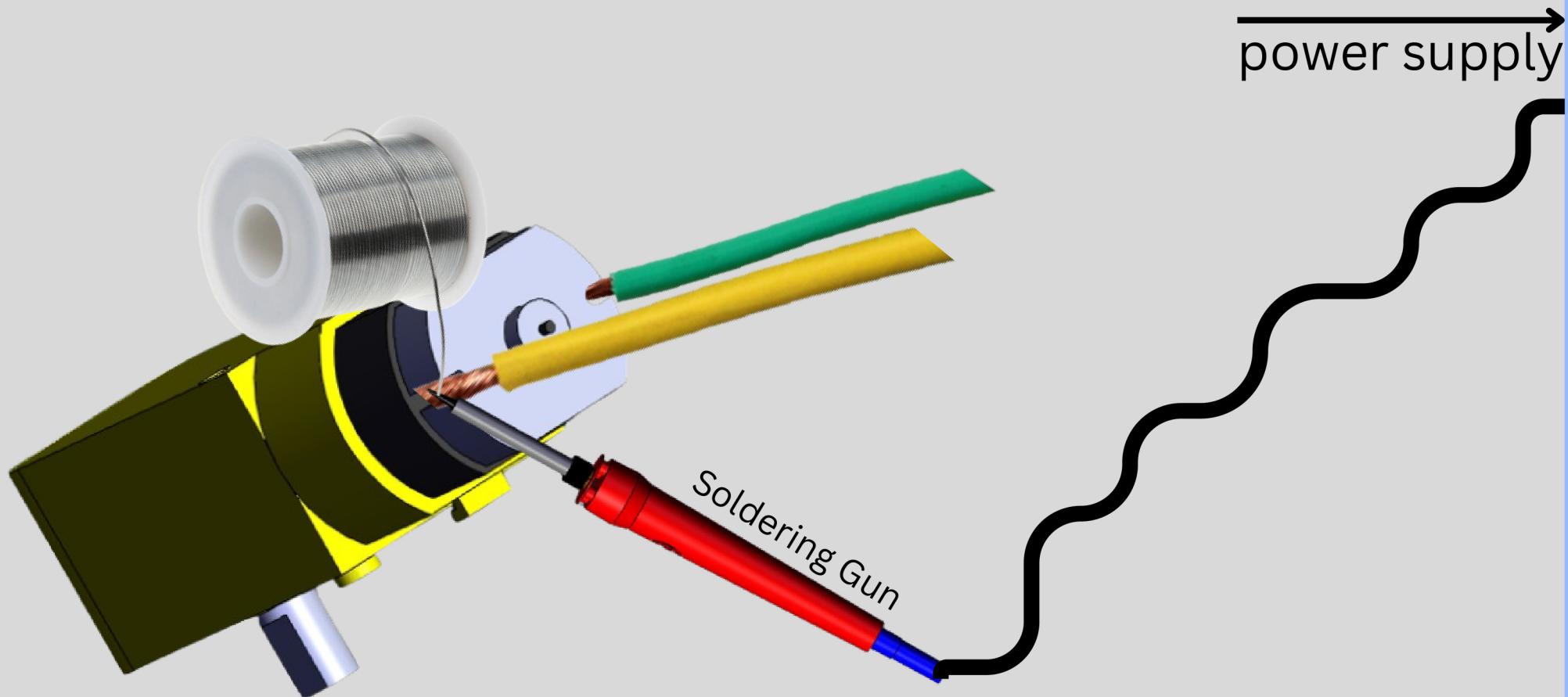


Copper wires

ASSEMBLY

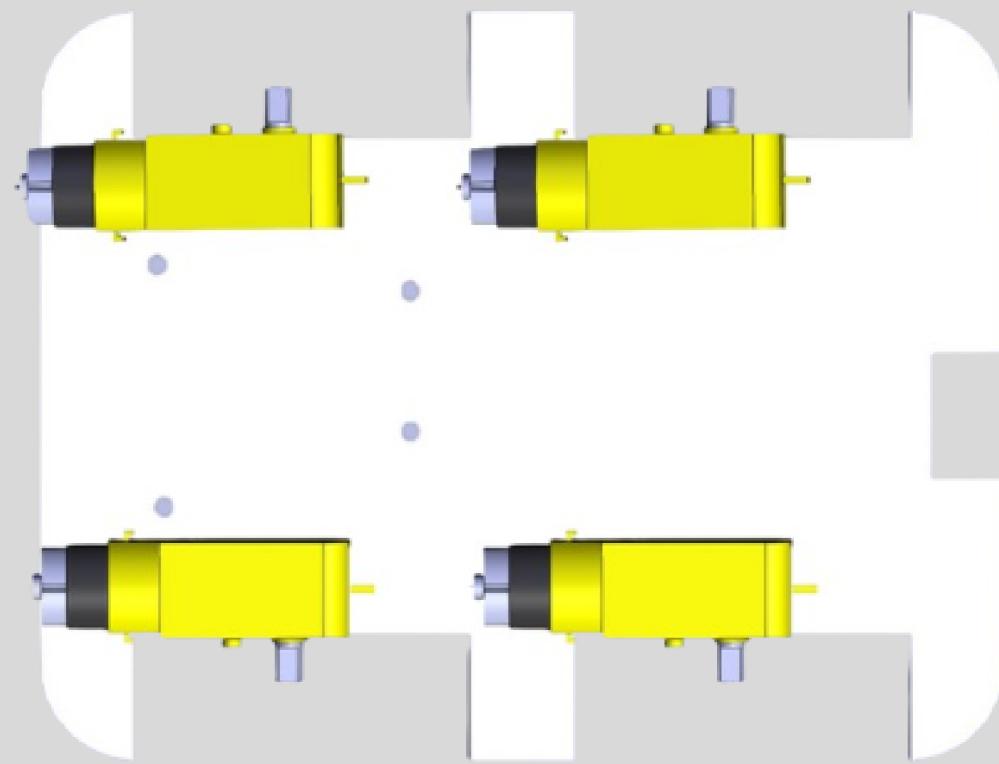


STEP 1 - Soldering wire with Dc Motor



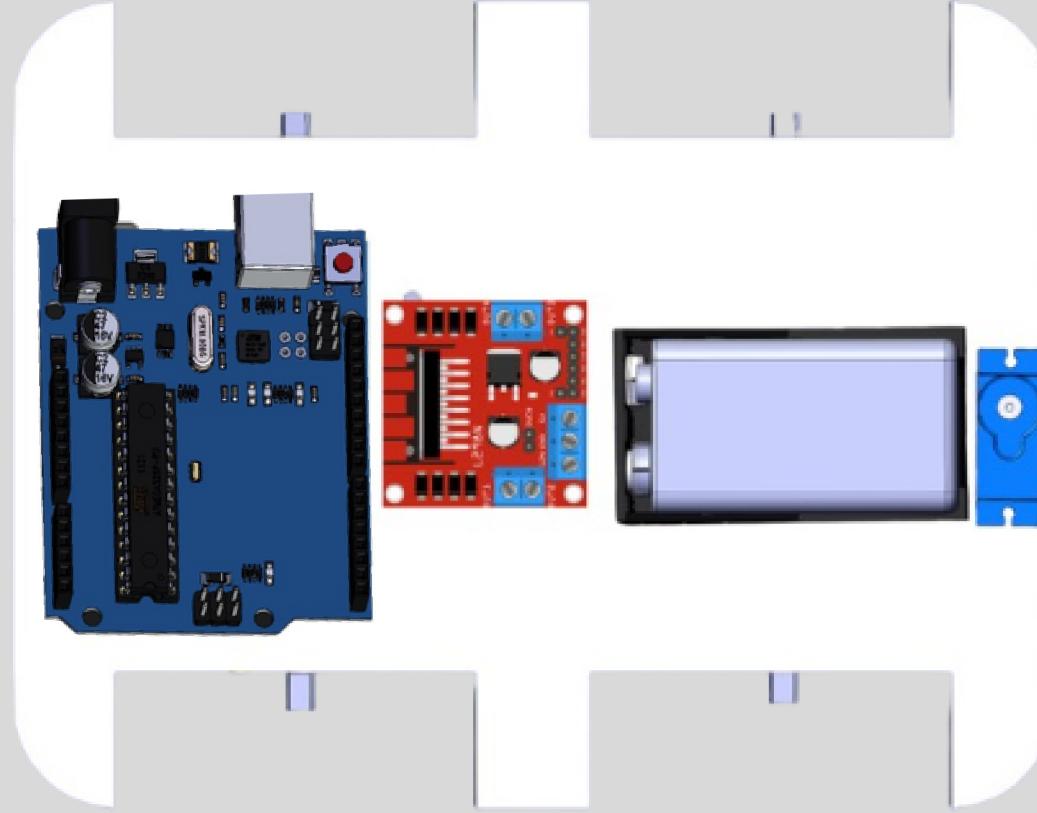
First, we solder the DC motor and the wires using the soldering wire and the soldering gun as shown

STEP 2 - ASSEMBLY!



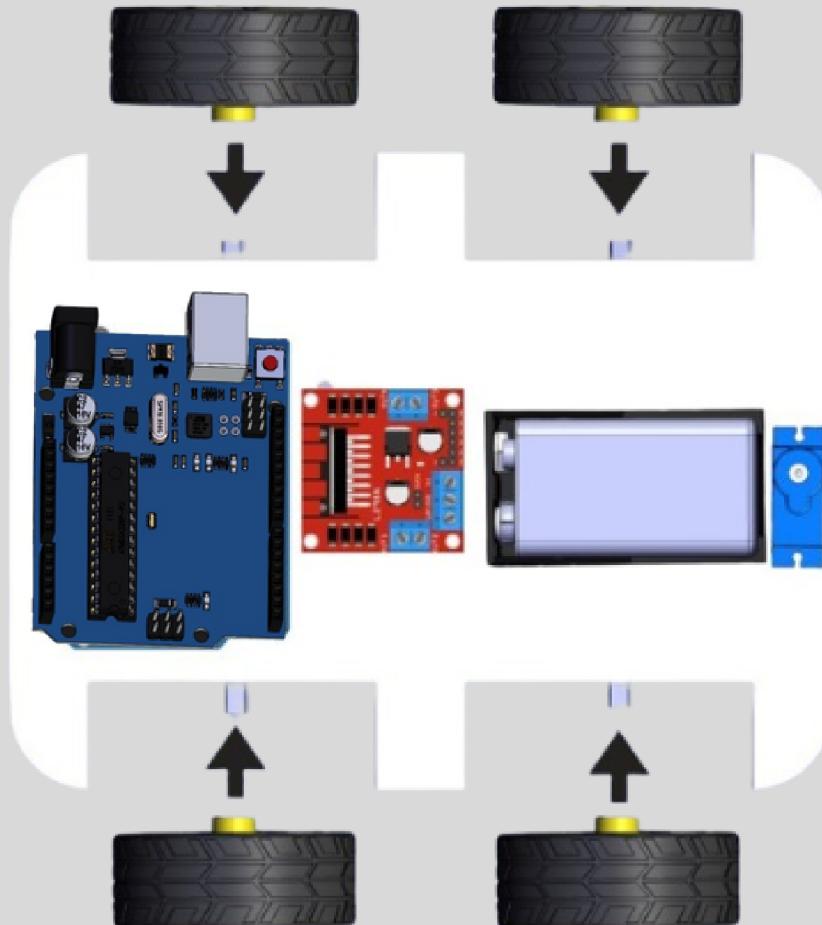
Assemble the Chassis: Attach the motors to the chassis using screws. Make sure they're firmly secured.

STEP-3



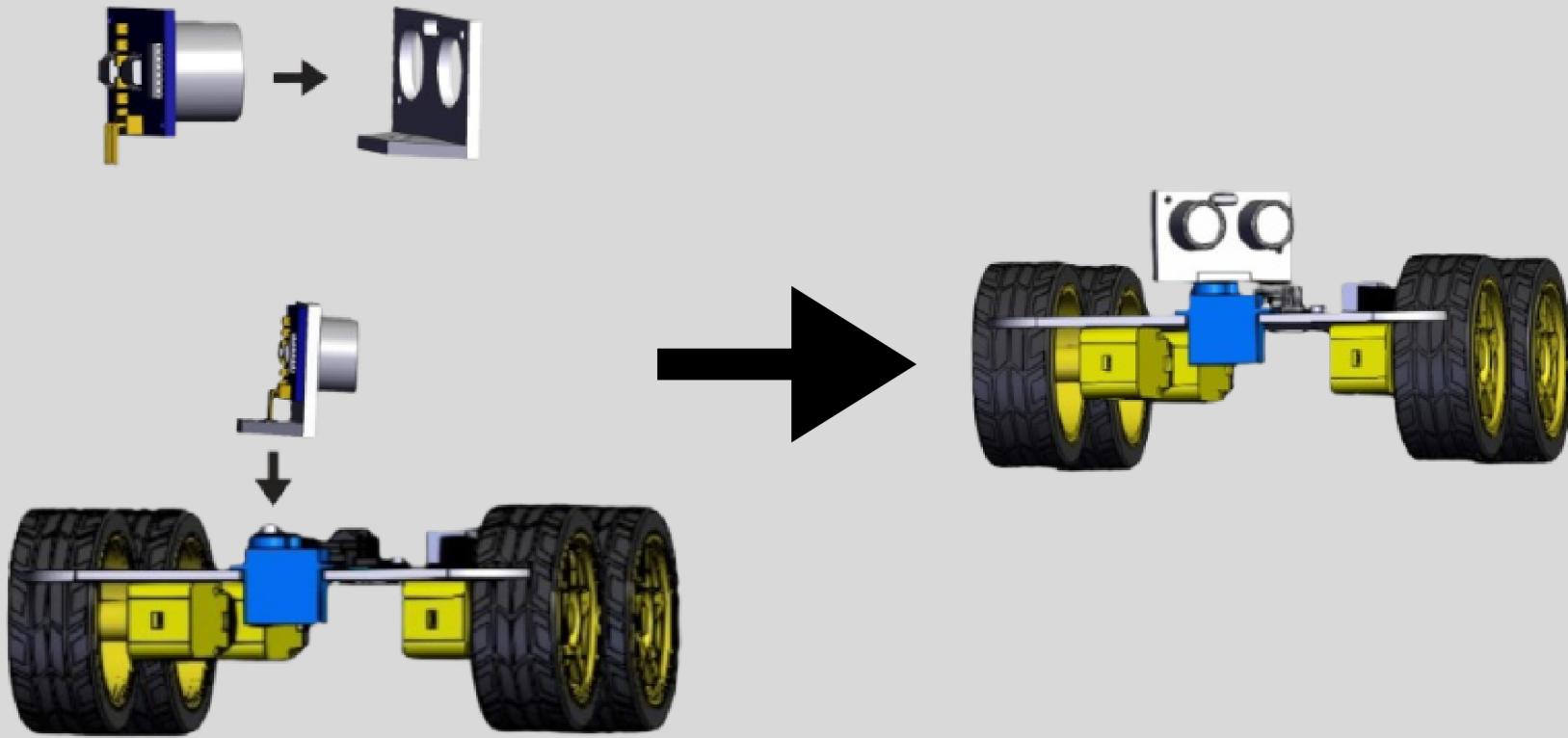
Mount the Motor Driver, Arduino Uno, and battery cell: Place the motor driver module onto the chassis, the Arduino Uno, the battery cell, servo motor and secure it using screws.

STEP-4



Connect Wheels: Attach the wheels to the motors. Ensure they're properly aligned and can move freely

STEP-5

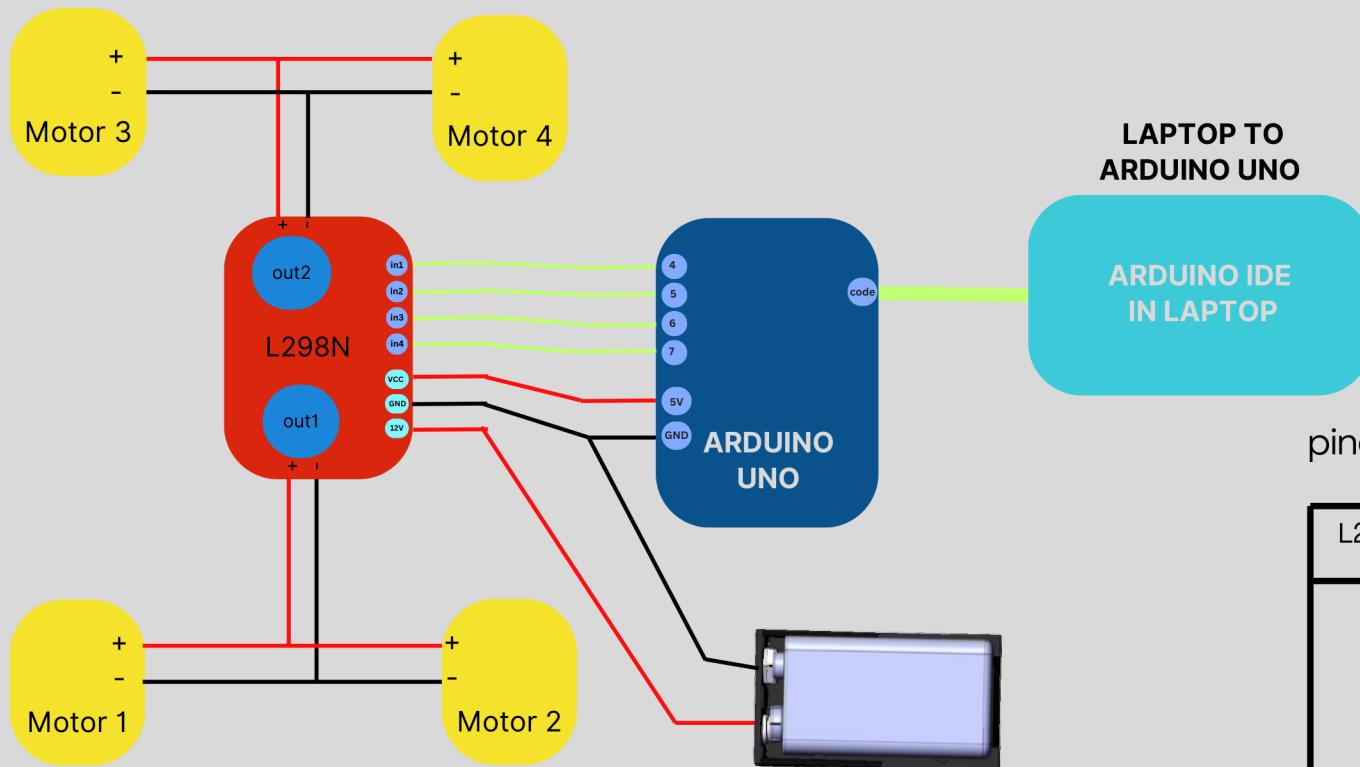


Install Ultrasonic Sensor: Mount the ultrasonic sensor on the front of the chassis facing forward. Ensure it has a clear line of sight. Now ultrasonic based self driving car is assembled

Circuit Connection

STEP-6

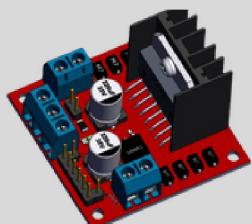
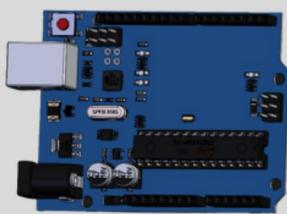
Connection of motor with motor driver and Arduino Uno:



pinout connections:

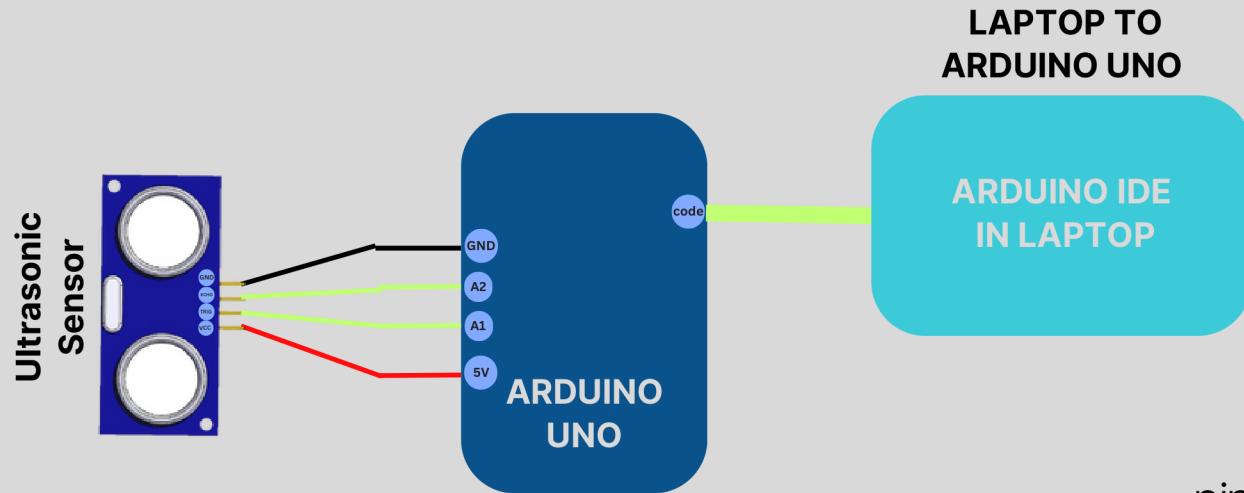
L298n driver pins	Arduino pins
IN1	4
IN2	5
IN3	6
IN4	7

Component List Used in Assembly are



STEP-7

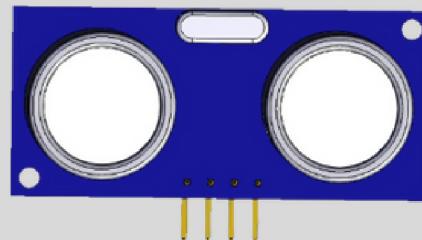
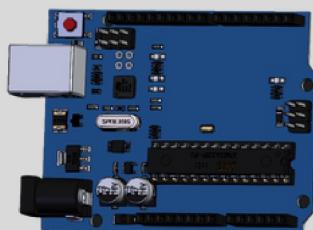
Connection of Ultrasonic sensor with Arduino Uno:



pinout connections:

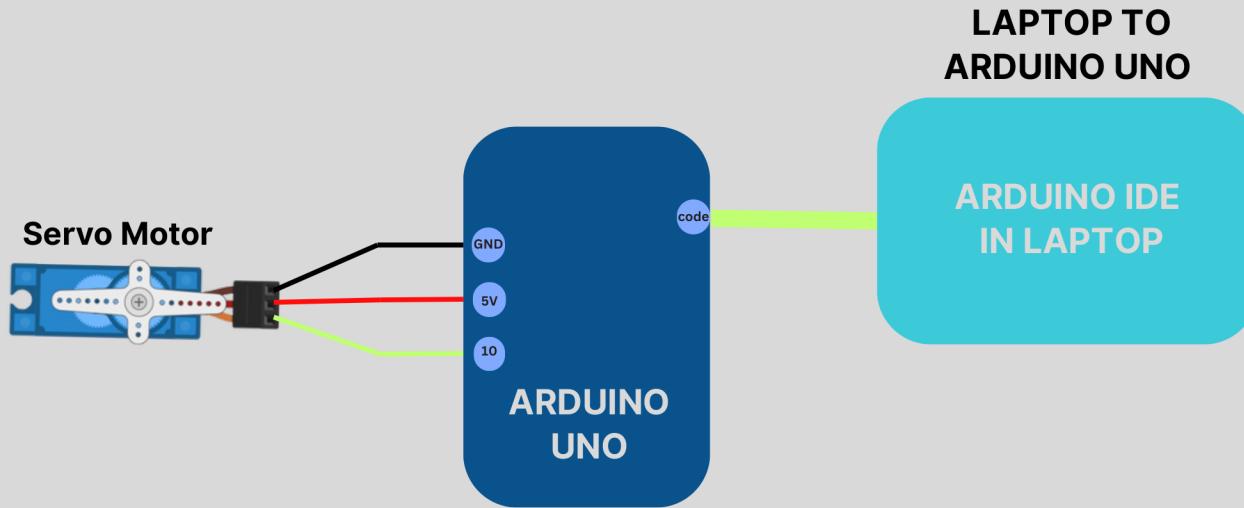
Ultrasonic Sensor pins	Arduino pins
VCC	5v
GND	GND
TRIG	A1
ECHO	A2

Component List Used in Assembly are



STEP-8

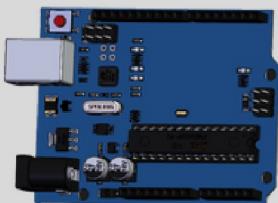
Connection of servo motor with Arduino Uno:



pinout connections:

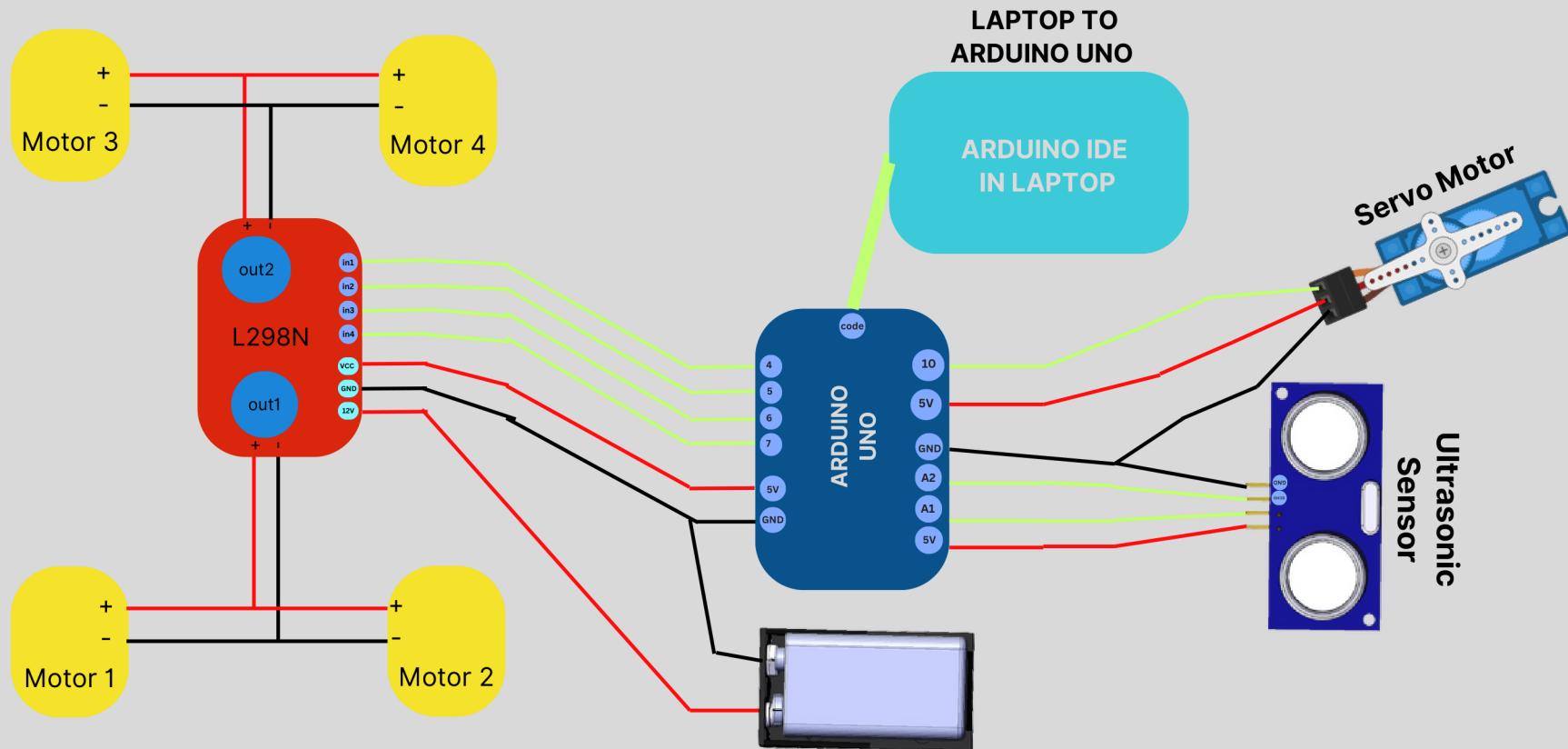
Servo pins	Arduino pins
VCC	5V
GND	GND
SIGNAL	10

Component List Used in Assembly are

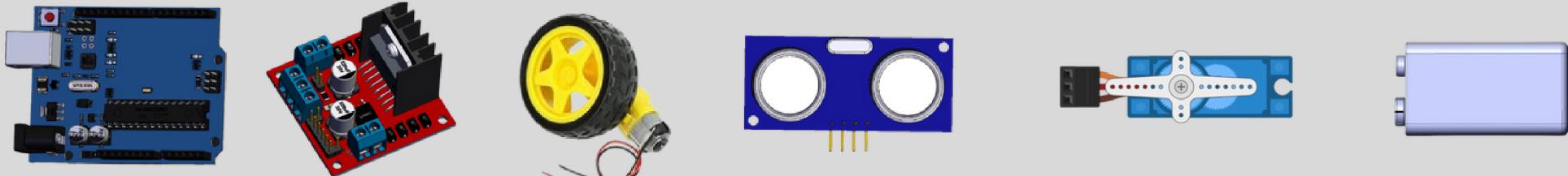


STEP-9

The overall circuit connection looks like :



Component List Used in Assembly are

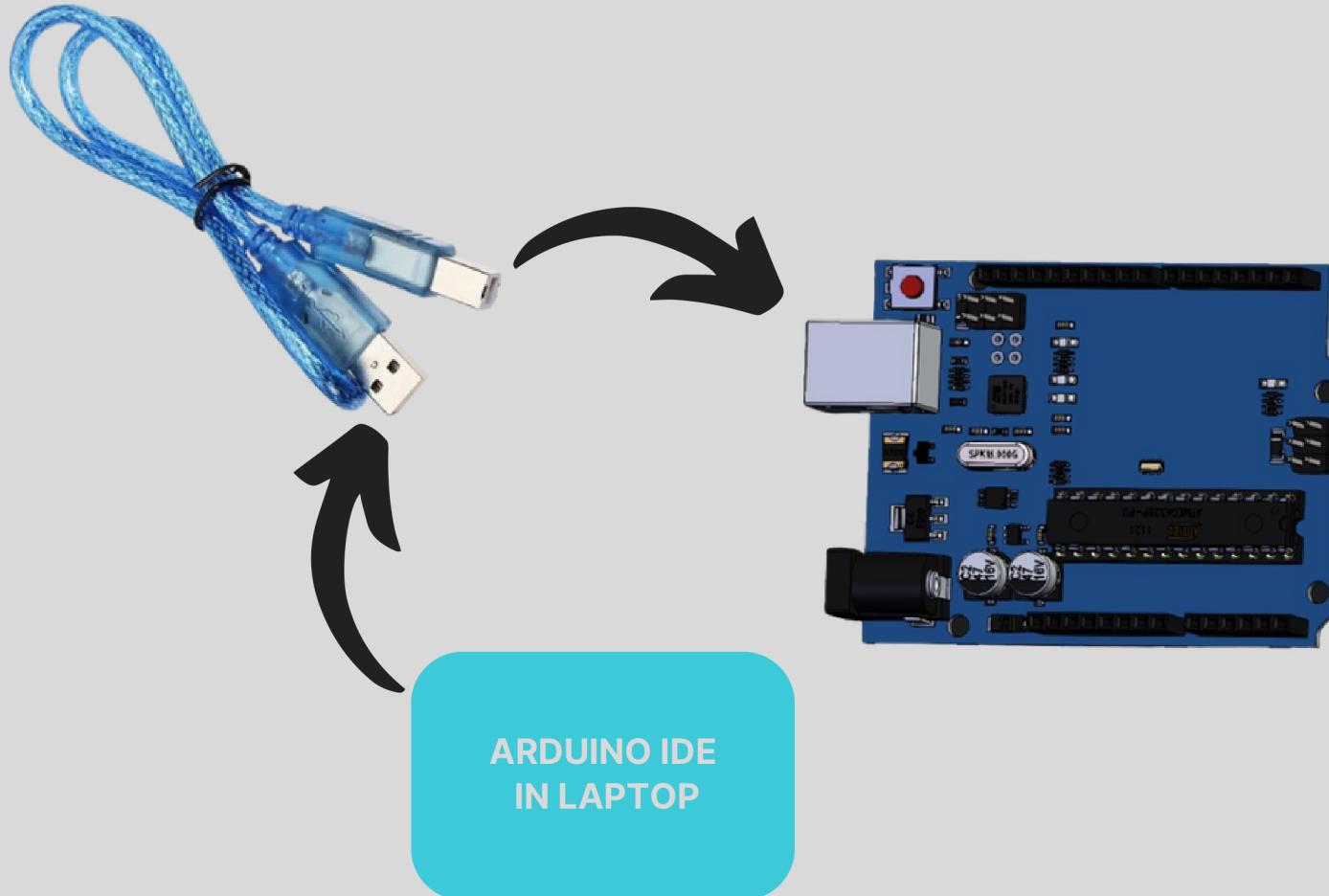


Programming



STEP-10

connecting the Arduino Uno to your computer



Typically a USB Type-B cable is used to connect to an Arduino .it has the USB 2.0 Type-B connector on one end and the USB 2.0 Type-A connector (for a computer on the other).

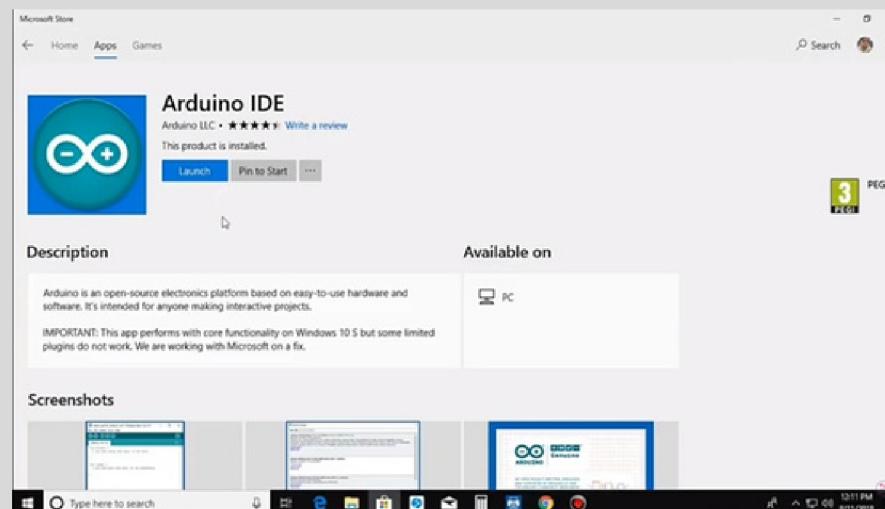
STEP-11

uploading the code

Download Arduino IDE software from its official website or you can also download it from Microsoft Store.

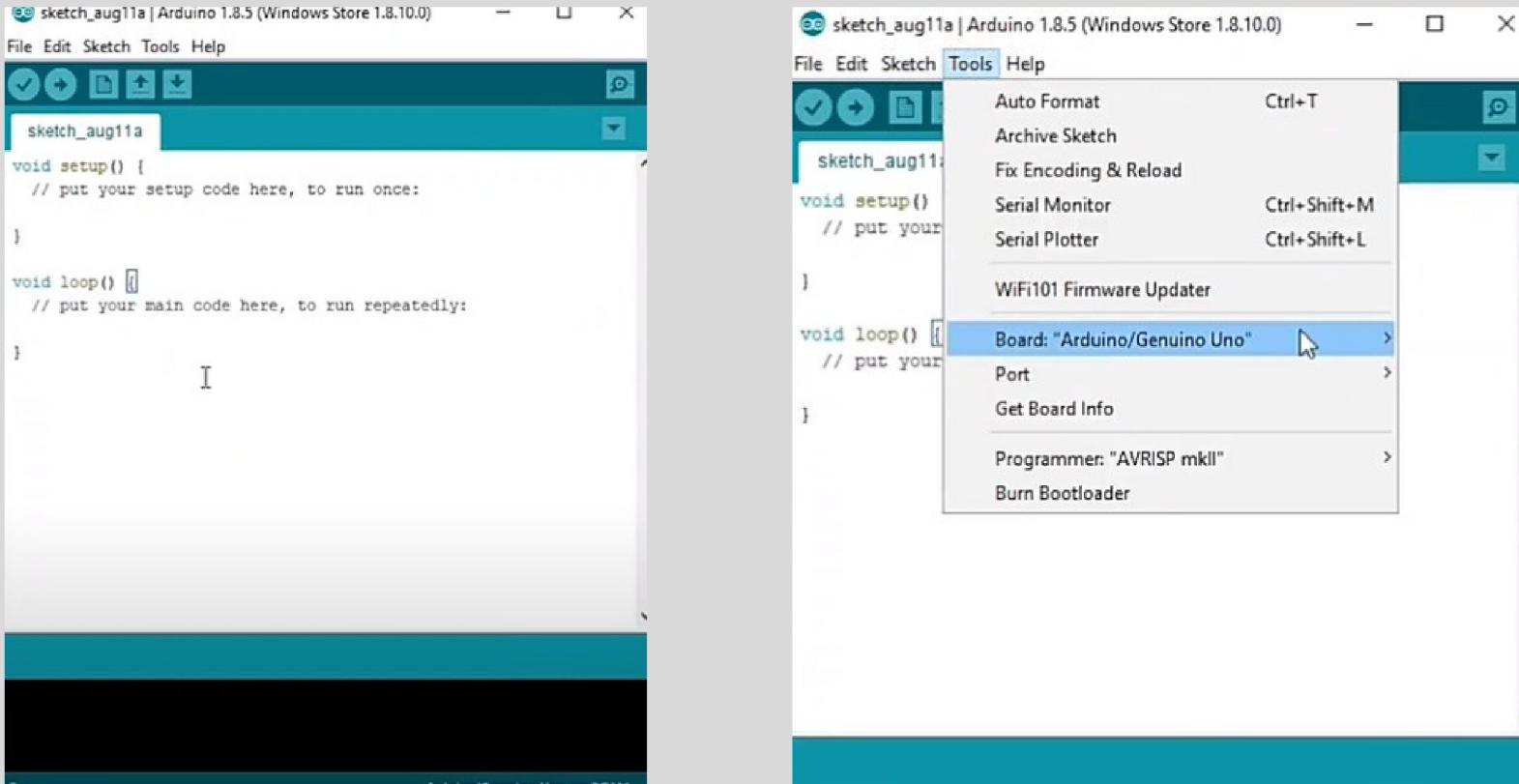


After downloading install Arduino IDE software on your PC/Laptop



STEP-12

Now, open Arduino IDE software.



Now you can just select your Arduino board model connected to your computer. This can be done by choosing the Arduino board from the tools option.

STEP-13

Now enter your code.



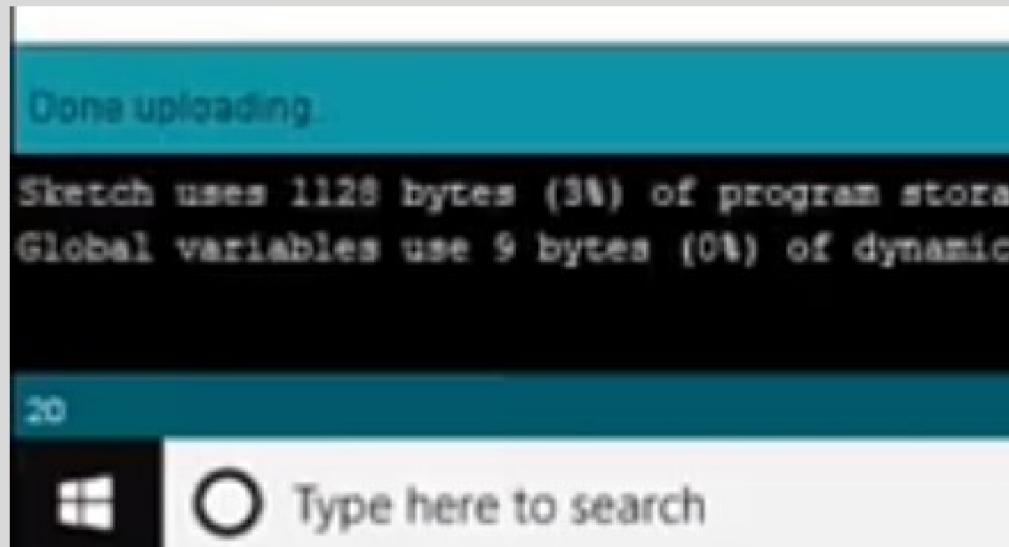
The screenshot shows the Arduino IDE interface. The title bar reads "sketch_aug11a | Arduino 1.8.5 (Windows Store 1.8.10.0)". The menu bar includes File, Edit, Sketch, Tools, and Help. Below the menu is a toolbar with icons for upload, download, and search. The main window displays the following code:

```
void setup() {
//declaring pin 13 as output to control transistor
pinMode(13, OUTPUT);

}

void loop() {
//slowly increasing the PWM signal on the transistor base
for(int a = 0; a < 255; a++){
analogWrite(13, a);
delay(10);
}
//slowly decreasing the PWM signal on the transistor base
for(int a = 255; a > 0; a--){
analogWrite(13, a);
delay(10);
}
}
```

At the bottom, a progress bar indicates "Compiling sketch..." with a green progress bar. The status bar at the bottom right says "Arduino/Genuino Uno on COM1".



Run and Compile your code. After compiling the Arduino code, click on the upload button.