Voice-Controlled-Arudino-Car
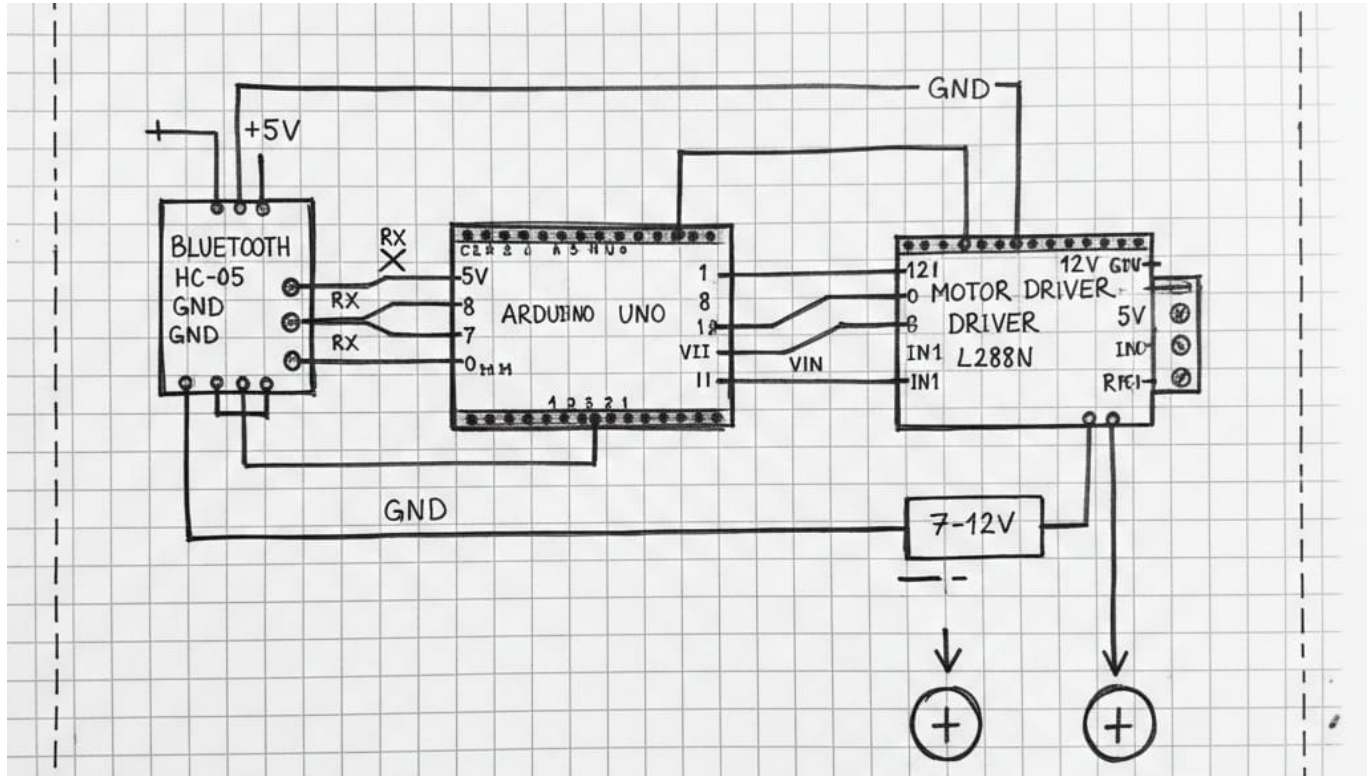

Component List :

Arduino Uno
L298N Motor Driver
HC-05 Bluetooth Module
Geared Motors
65mm Wheels
Caster Wheel
18650 Li-ion Batteries
Battery Holder
Jumper Wires
Robot Chassis (Plywood/Plastic)

Connection :

1. Power Connections
[ ] Connect Battery (+) to L298N 12V terminal.
[ ] Connect Battery (-) to L298N GND terminal.
[ ] Connect L298N GND to Arduino GND pin.
[ ] Connect L298N 5V to Arduino VIN pin.

2. Motor Driver Logic Connections
[ ] Connect L298N IN1 to Arduino Pin 2.
[ ] Connect L298N IN2 to Arduino Pin 3.
[ ] Connect L298N IN3 to Arduino Pin 4.
[ ] Connect L298N IN4 to Arduino Pin 5.

3. Bluetooth (HC-05) Connections
[ ] Connect HC-05 VCC to Arduino 5V.
[ ] Connect HC-05 GND to Arduino GND.
[ ] Connect HC-05 TX to Arduino RX (Pin 0).
[ ] Connect HC-05 RX to Arduino TX (Pin 1).

4. Physical Motor Connections
[ ] Connect Left Motor wires to L298N OUT1 & OUT2 terminals.
[ ] Connect Right Motor wires to L298N OUT3 & OUT4 terminals.

Bluetooth Pairing & Operation :

Follow these steps to connect your smartphone to the robot:
1. Pairing the HC-05 Module
[ ] Power Up: Connect the batteries to the L298N driver.
[ ] Observe: The LED on the HC-05 module should blink rapidly (searching mode).

[ ] Phone Settings: Open Bluetooth settings on your smartphone and scan for new devices.
[ ] Pair Device: Select "HC-05".
[ ] Enter PIN: Use 1234 (or 0000 if that fails).
[ ] Confirm: Once paired, the blinking speed of the LED will change to a slow pulse.

2. Sending Control Commands

Use a "Bluetooth Terminal" app (available on Play Store/App Store) to send the following letters to control the robot. Note: Commands are usually Case Sensitive.

F : Forward (Both motors move forward)
B : Backward (Both motors move backward)
L : Left (Right motor forward, Left motor backward)
R : Right (Left motor forward, Right motor backward)
S : Stop (All motors stop)
 Quick Troubleshooting

No Power: Check if the L298N 5V output is reaching the Arduino VIN pin.
Wrong Direction: If the robot moves Left when you send R, simply swap the wires of the Left and Right motors in the L298N terminals.
Code Upload Failed: Ensure you have unplugged the RX and TX wires from the Arduino before clicking "Upload" in the IDE.