

Quick start guide

1.1 Hardware assembly

Insert assembly video/ CAD model

Components

Ensure you have the following components ready for the Chelonia hardware assembly:

- Arduino Uno
- L298N Motor Driver
- DC Motors (2)
- Wheels (2)
- Battery
- Connectors

Hardware Connection Diagram

Refer to the attached hardware connection diagram available at the following link:

[Hardware connection](#)

Assembly Steps

Follow the steps below to complete the Chelonia hardware assembly:

- **DC Motor and Wheel Connection:**
 - Connect each DC motor to the corresponding output terminals of the L298N Motor Driver.
 - Attach the wheels securely to the motor shafts.
- **Battery Connection:**
 - Connect the battery to the power input terminals of the L298N Motor Driver.
 - Ensure correct polarity to avoid damage.
- **Wiring Check:**
 - Verify all connections, ensuring there are no loose wires or incorrect placements.
 - Double-check the connection diagram for reference.
- **Power-Up and Testing:**
 - Power up the Chelonia by turning on the battery.
 - Ensure the Arduino Uno and L298N Motor Driver receive power.
 - To test the hardware assembly, execute the code for the desired experiment on the Arduino Uno.
 - Observe the movement of the wheels and ensure they respond appropriately to the code instructions.
- **Programming Connection:**

- During programming, disconnect the 5V line from the L298N Motor Driver to the Arduino Uno.
- Connect the necessary programming pins based on the experiment requirements.
- **Post-Programming Power-Up:**
 - After programming, reconnect the 5V line from the L298N Motor Driver to the Arduino Uno for normal operation.

1.2 Software Installation

This section will help you to install the Arduino ide software for programming.

- Step 1: Go to the website www.arduino.cc to download the software.
- Step 2: Click on the “windows installer” icon from the bottom of the site.
- Step 3: Begin the download by click “just download” option.
- Step 4: Extract the zip file and start the installation.
- Step 5: Select the installation options.
- Step 6: Choose the installation path.
- Step 7: Finish the installation.
- Step 8: Launch the Arduino IDE.

1.3 Connecting to Arduino IDE

Follow the steps below to connect your Chelonia to the Arduino IDE:

- **Connect the Cable:**
 - Connect the USB cable from your computer to the Arduino Uno on your Chelonia.
- **Open Arduino IDE:**
 - Open the Arduino IDE software on your computer.
- **Open New Sketch:**
 - In the Arduino IDE, open a new sketch.
- **Board Selection**
 - Select the Arduino uno board from the Arduino IDE software. For doubt please refer the link :[Arduino board selection](#)
- **Load the Code:**
 - Copy and paste the code for the specific experiment into the new sketch.
- **Verify the Code:**
 - Click on the "Verify" button (checkmark icon) to check the code for any errors.
- **Upload the Code:**
 - Once the code verification is successful, click on the "Upload" button (right arrow icon) to upload the code to the Arduino board.

- **Observe LED Blinking:**
 - During the uploading process, observe the LED on the Arduino Uno. It should blink, indicating the data transfer.
- **Remove the Connector:**
 - After successful uploading, safely disconnect the USB cable from the Arduino Uno.
- **Connect 5V from Driver to Arduino:**
 - Prior to powering up the Chelonia, reconnect the 5V line from the L298N Motor Driver to the Arduino Uno.

Important Note: Before proceeding with any power-up activities, it is crucial to ensure the reliability of your Chelonia's wiring. Perform the following essential steps:

- **Multimeter Continuity Check:**
 - **Use a multimeter** to check the continuity of each wire. Verify that there are no breaks or interruptions in the wiring. This step is essential for preventing potential issues related to poor electrical connectivity.
- **Double-Check All Connections:**
 - **Thoroughly inspect all connections** to guarantee that each component is securely and correctly attached. Pay special attention to junctions, joints, and interfaces between different modules. Any loose or incorrectly connected components could lead to operational errors or malfunctions.

These precautionary measures ensure a robust and reliable hardware setup, minimizing the risk of electrical faults during the operation of your Chelonia Bot.

EXPERIMENT 1: CUSTOM COMMAND FOLLOWER