Project Documentation

# Modules Completed

## 1. Hardware Setup

- Successfully completed the wiring of the four-wheel drive bot.  
- Motors and wheels are properly connected and tested.  
- Control is currently operational using TX and RX serial communication.

## 2. Frontend Interface

- A web-based frontend has been developed.  
- The interface includes joystick-based control elements.  
- Communication between frontend and backend is handled using Pub/Sub pattern.

## 3. MQTT Integration

- Implemented MQTT server to act as a bridge between the frontend and the ESP32.  
- Remote access and control logic over the network are functioning correctly.  
- MQTT topics are being used to send directional commands from the frontend to the bot.

# Next Steps / Modules To Be Completed

## 1. ESP32 Wiring & Integration

- Wire the ESP32 directly to the motor driver for control signal transmission.  
- Ensure all pins are properly mapped for directional motor control.

## 2. ESP32 Motor Control Code

- Write and upload the code to the ESP32 to receive MQTT messages.  
- Decoded messages as to be translated into motor control signals (e.g., forward, backward, left, right).  
- Implement basic speed control if required.