Rope Climbing Bot

Binary_Bombers

– Team Members

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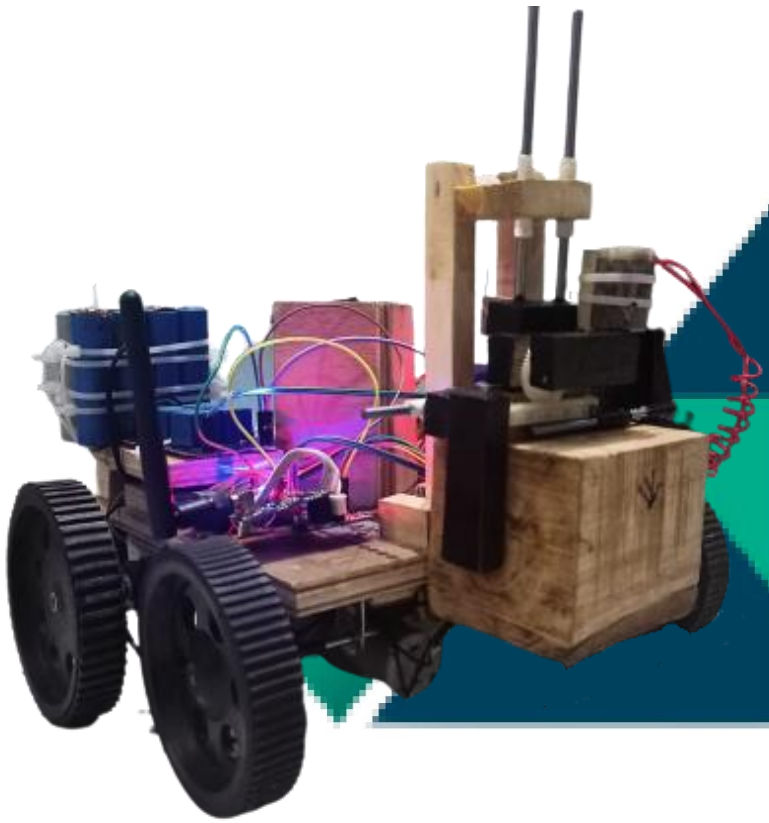


Bot Specifications

- Bot Weight: 2.5 Kg
- Bot Dimensions:
  - Length: 25 cm
  - Breadth: 28 cm
  - Height: 23 cm

Bot Components

- Ply wood
- Bearings
- Nuts and Screws
- Mg90s Servo
- Gears
- Wheels
- Johnson Motor
- DC Geared Motors
- Arduino NANO
- Metal Clamps
- Relays
- L293D
- nRF Module
- Self-Made Transmitter
- 18650 Battery Pack

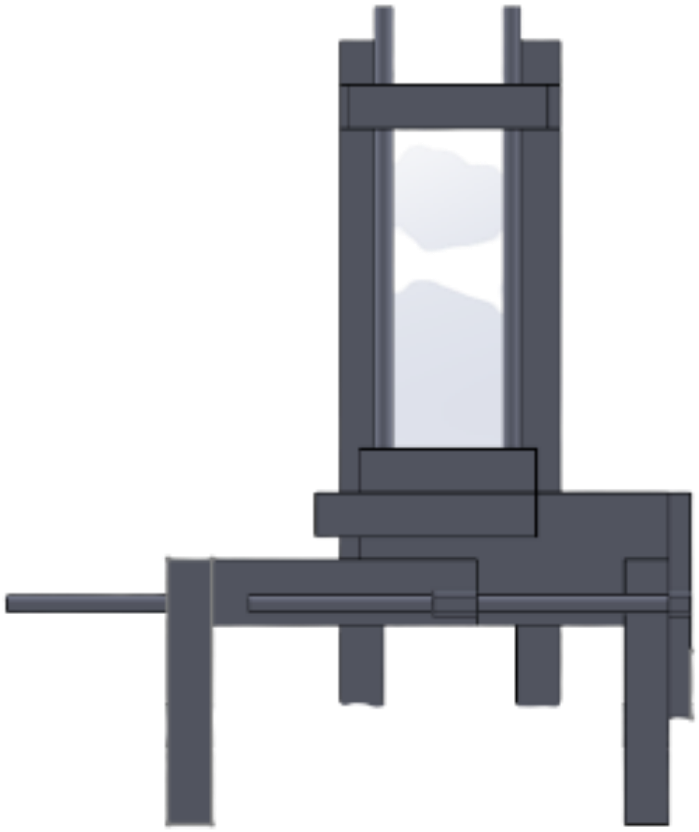
Bot Mechanism

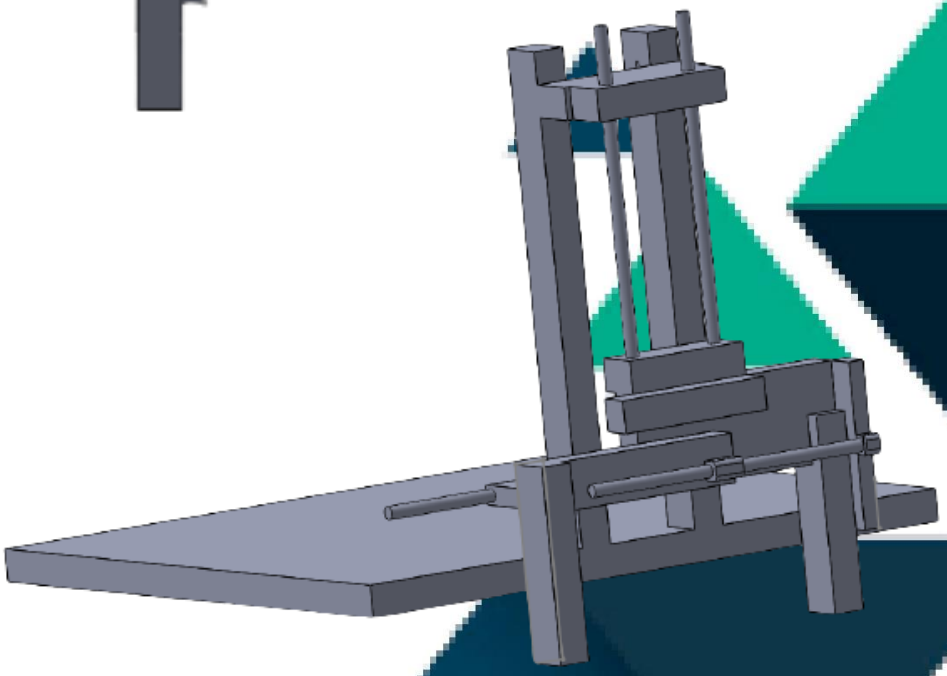
There are two main mechanisms in our bot

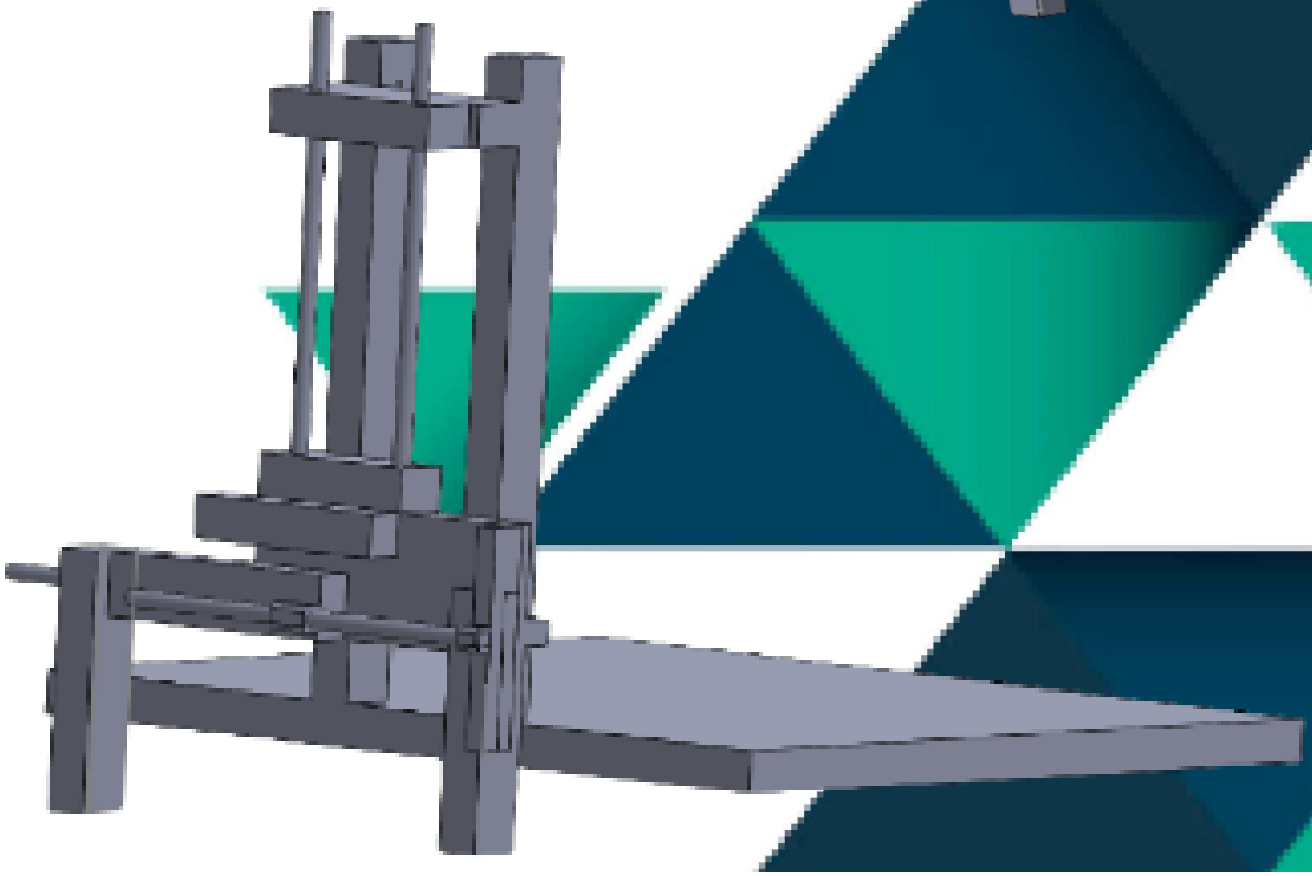
- **Block Picking Mechanism**
- **Climbing Mechanism**

1. Block Picking Mechanism

This mechanism will be used to pick up the block from a flat surface. Firstly, we will hold the block using Rack and Pinion Mechanism. In bot, there is a movable clamp, which will slide due to motion of gear. Due to which the block gets locked between both the hands of the bot. There is a slider which is transverse to the axis of the clamp described above, which move up due to motion of motor. So, in this way block is picked up from the flat surface.

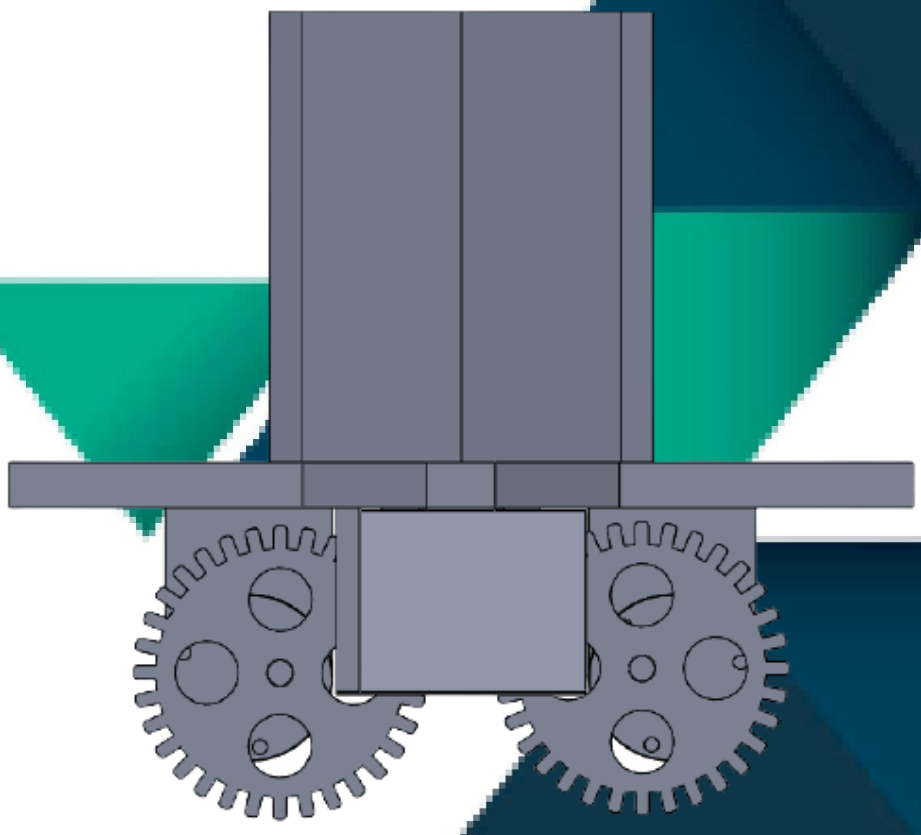


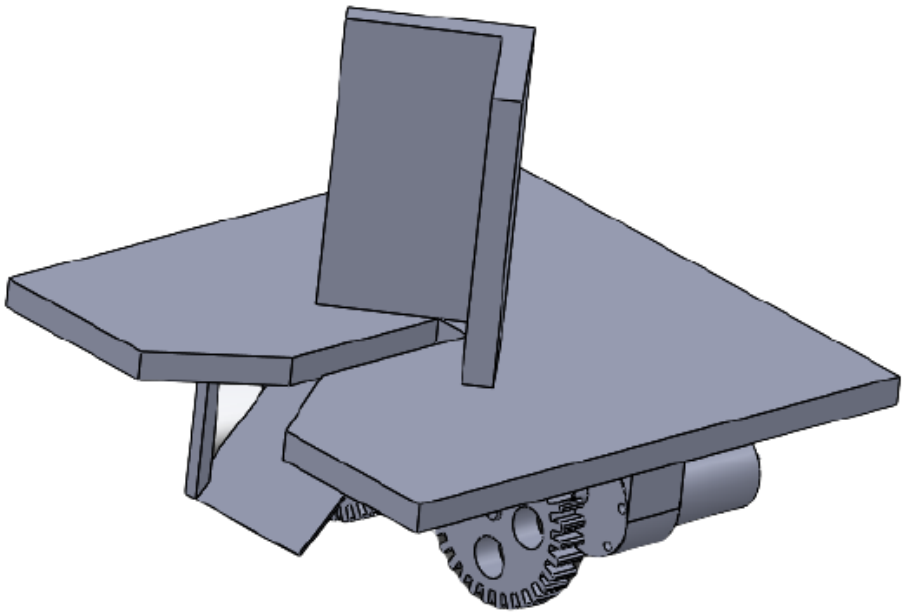


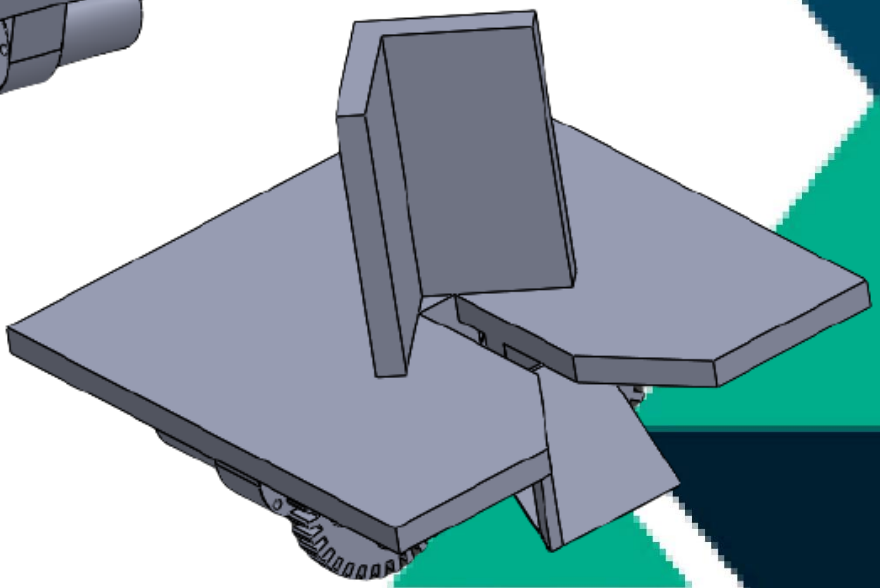


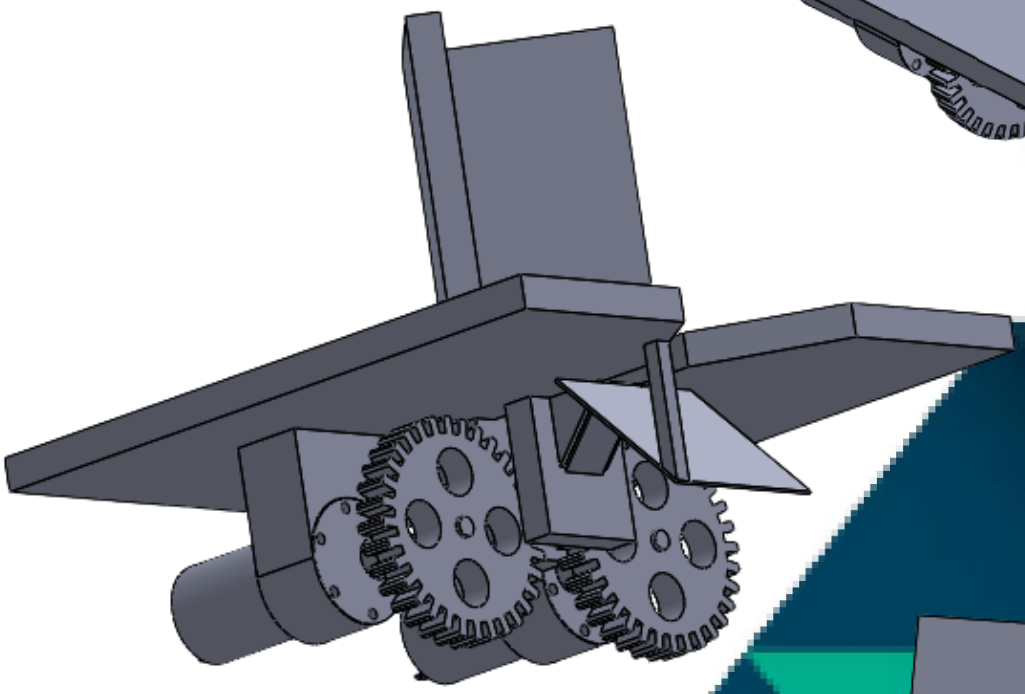
2. Climbing Mechanism

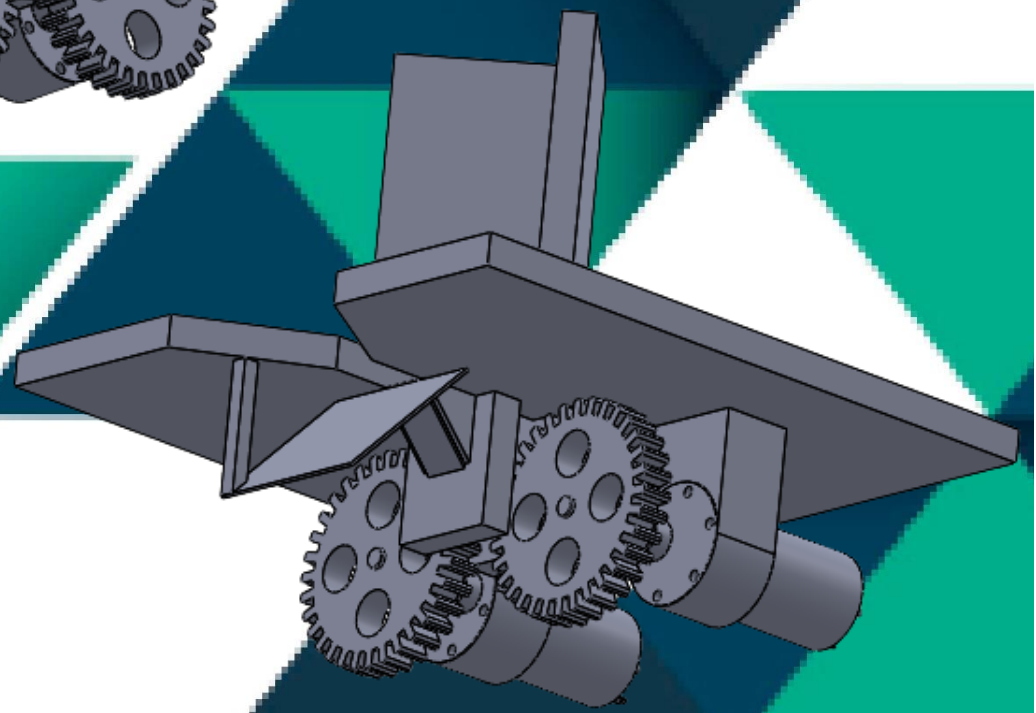
This mechanism will be used by bot to climb up the rope. Firstly, there is a gap which will guide the rope towards the gears. Also, there is a servo motor just before gears which will make sure that the rope is properly stuck between gears. Now as the rope is stuck between two gears, the gears will always rotate in opposite directions with the help of motion of motors, due to which the rope will get taut and the bot will start to climb up. So, in this way the bot will climb up the rope.



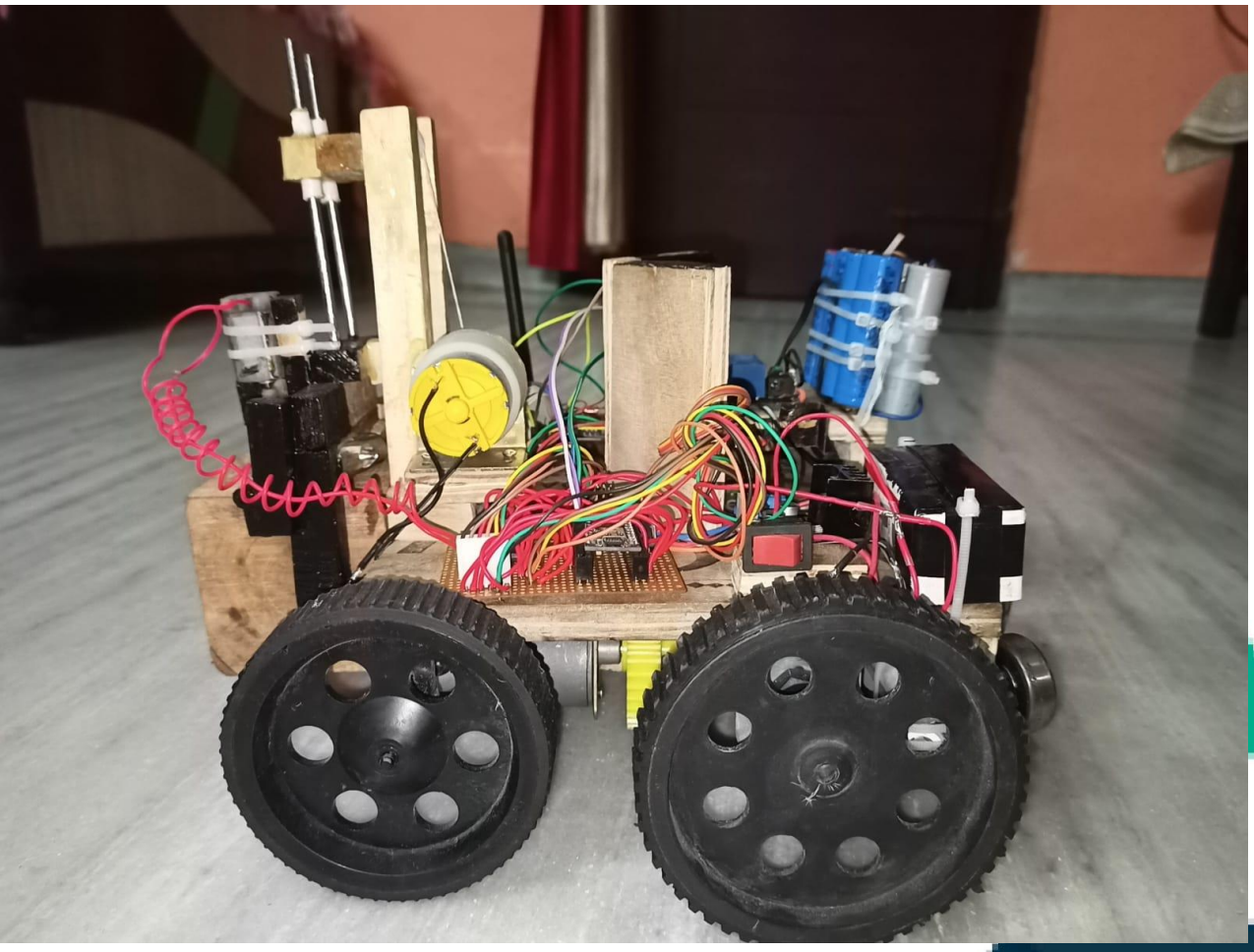


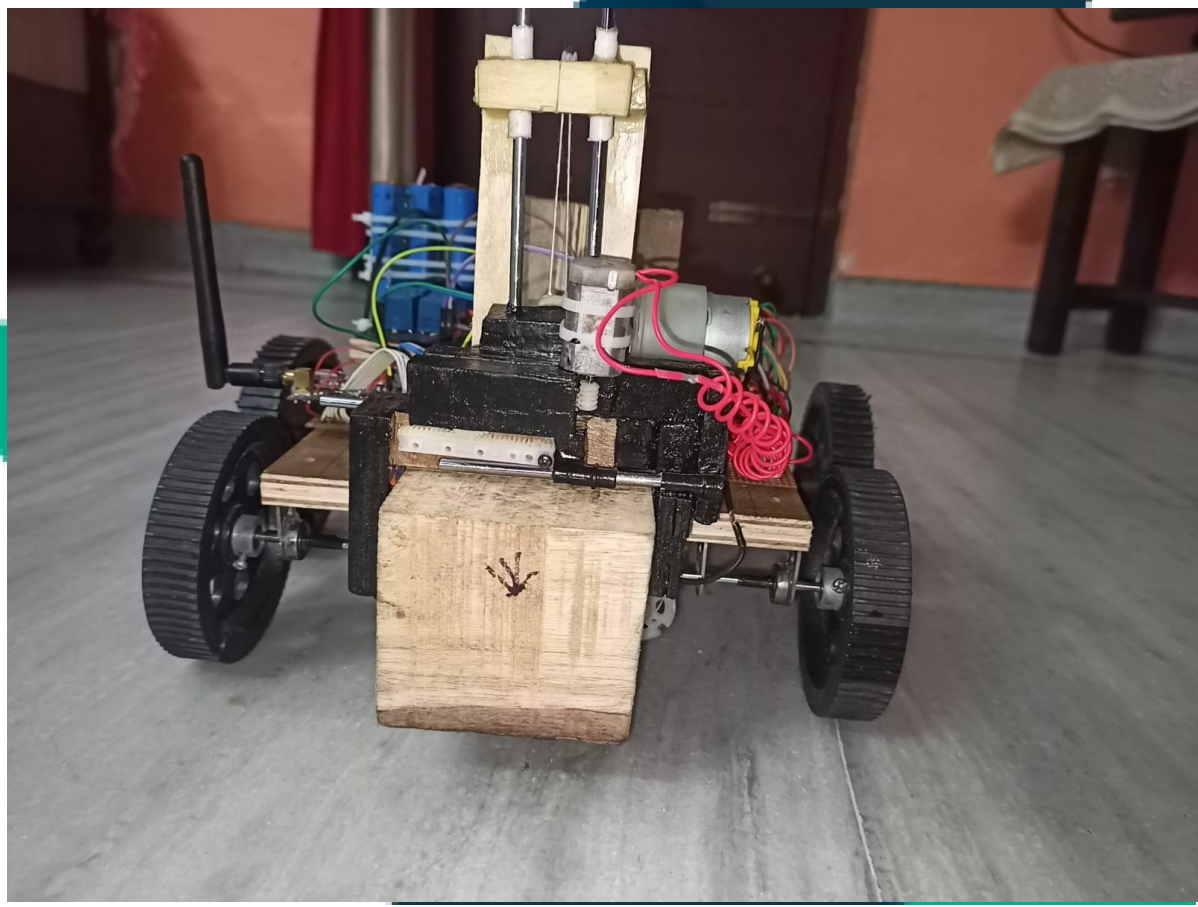


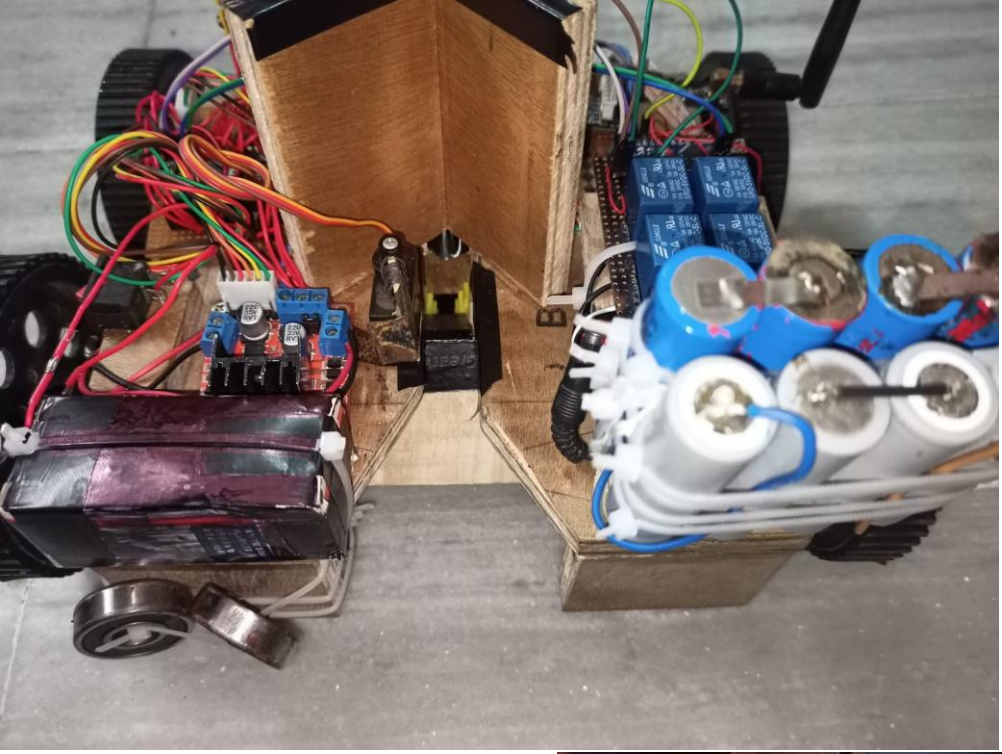


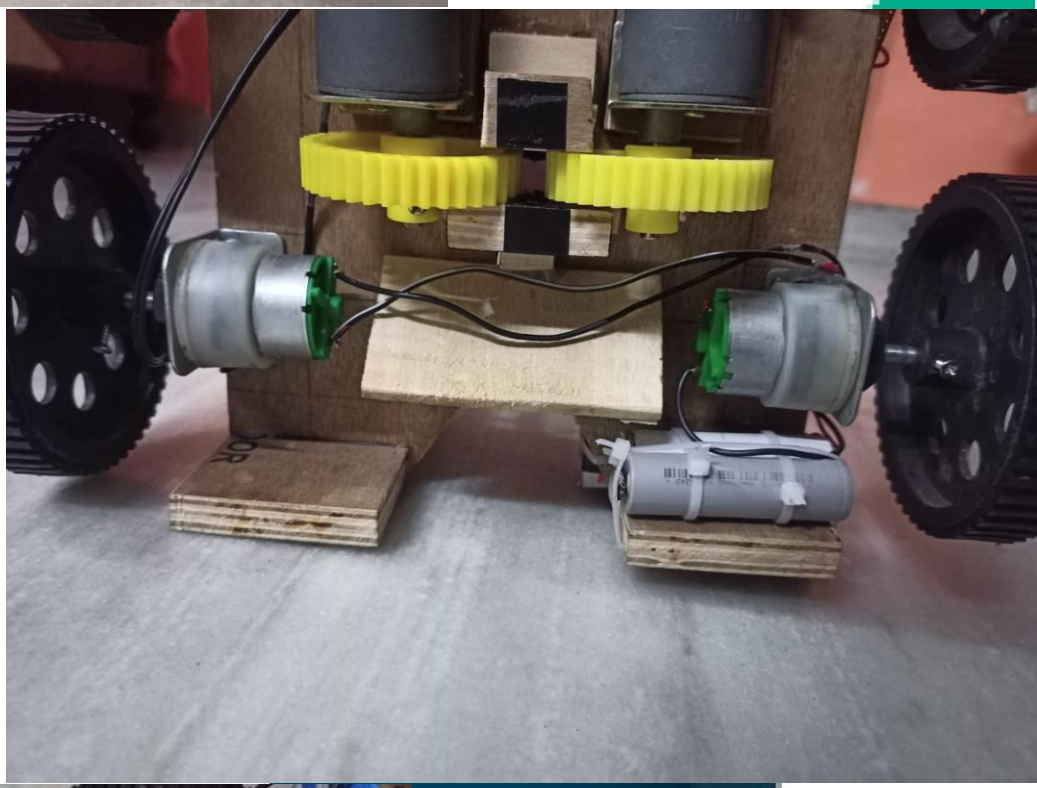


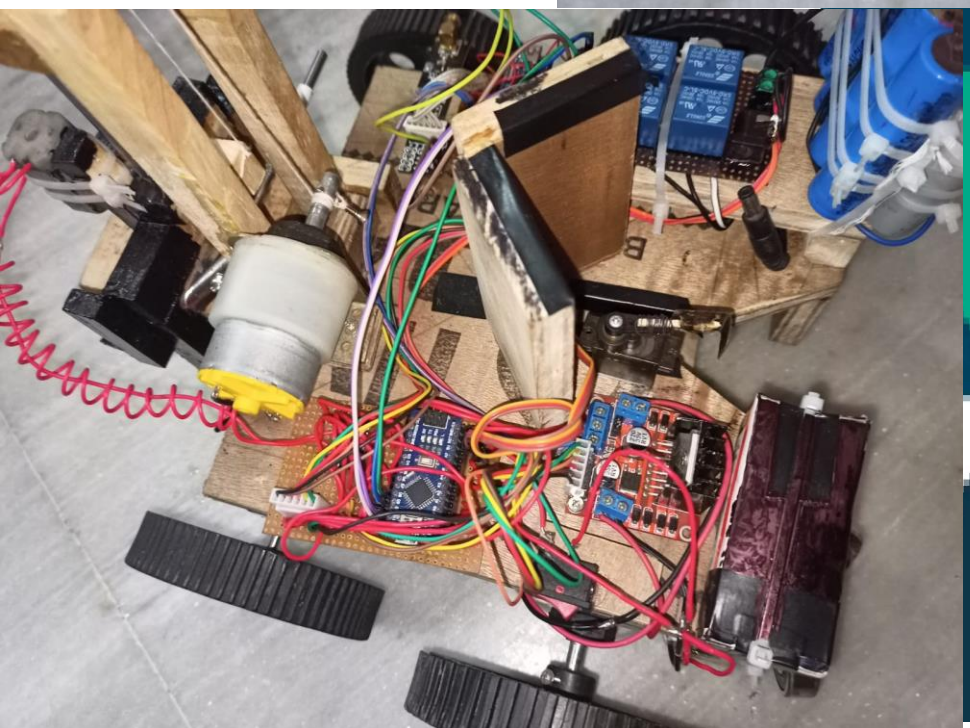
Bot Pictures

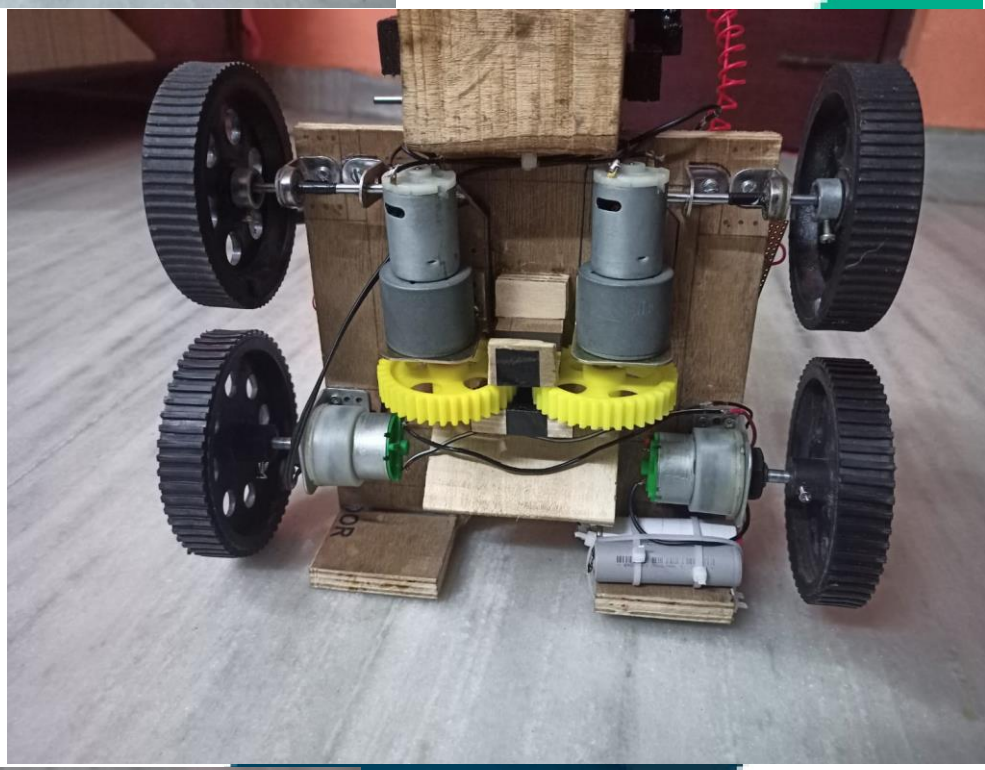


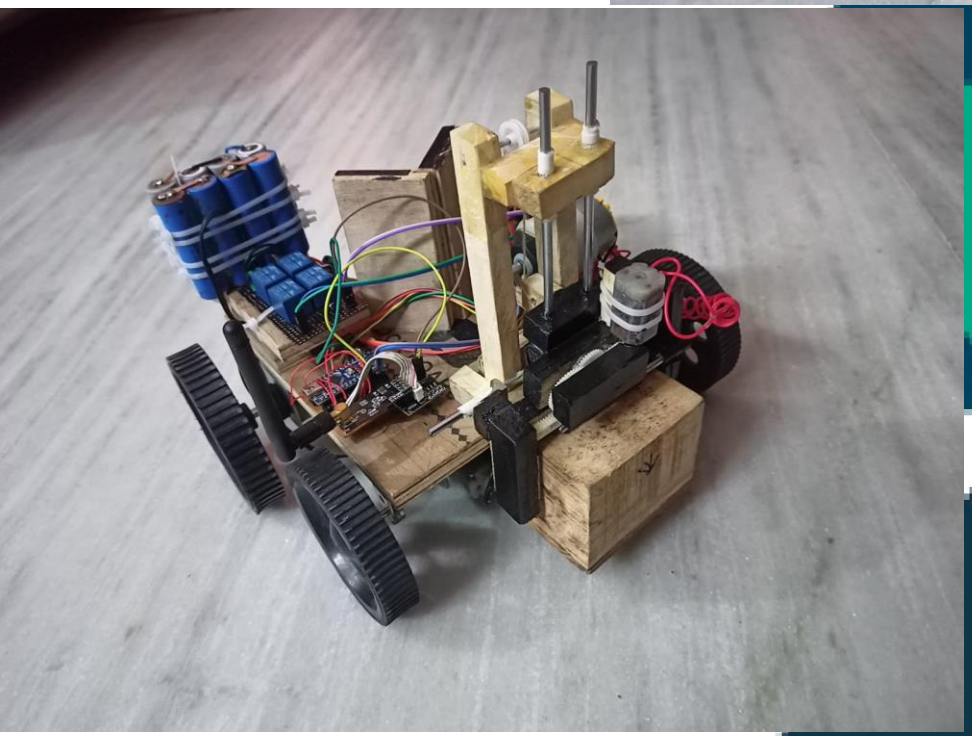


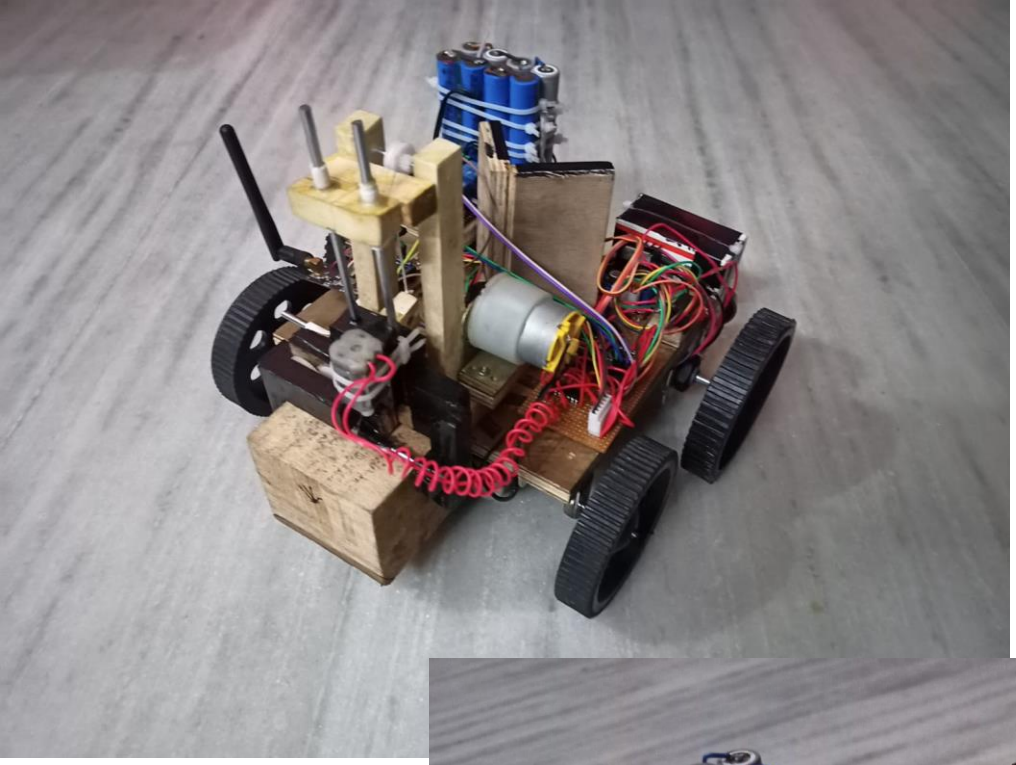


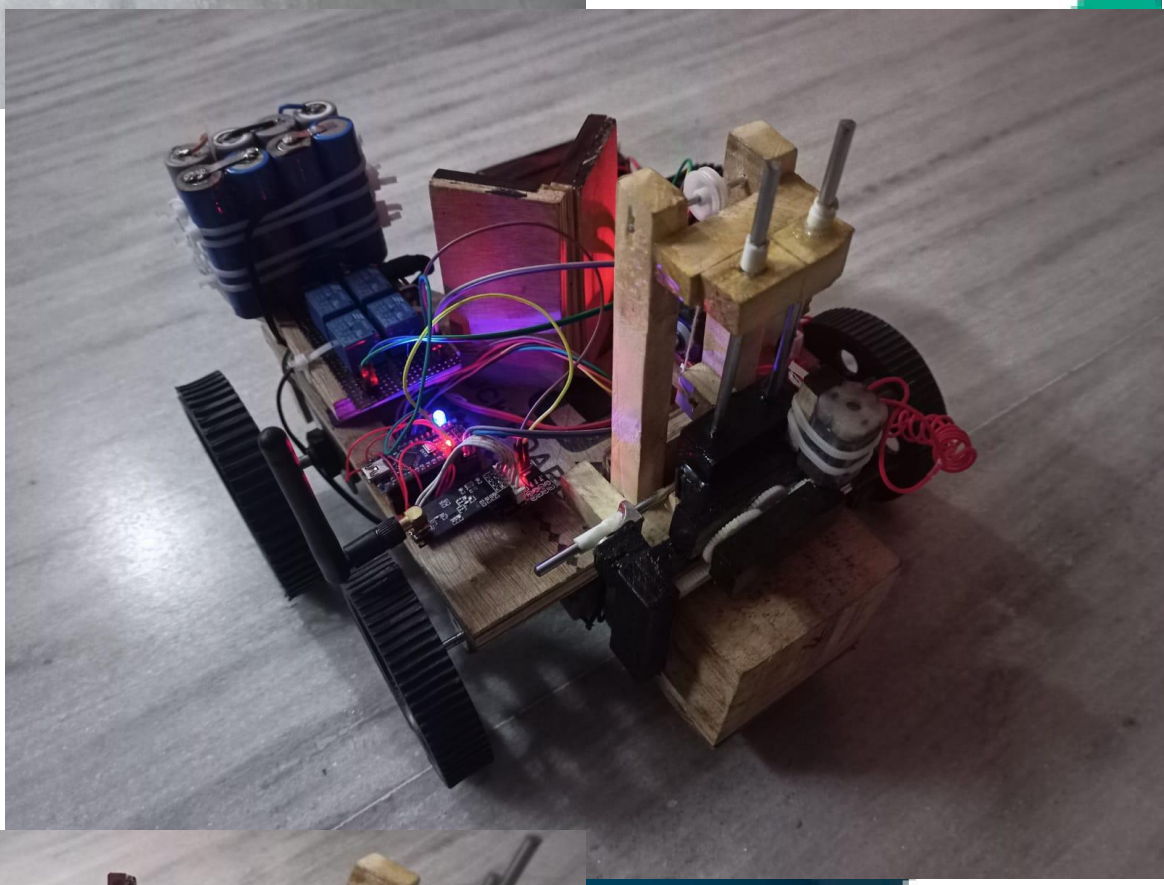


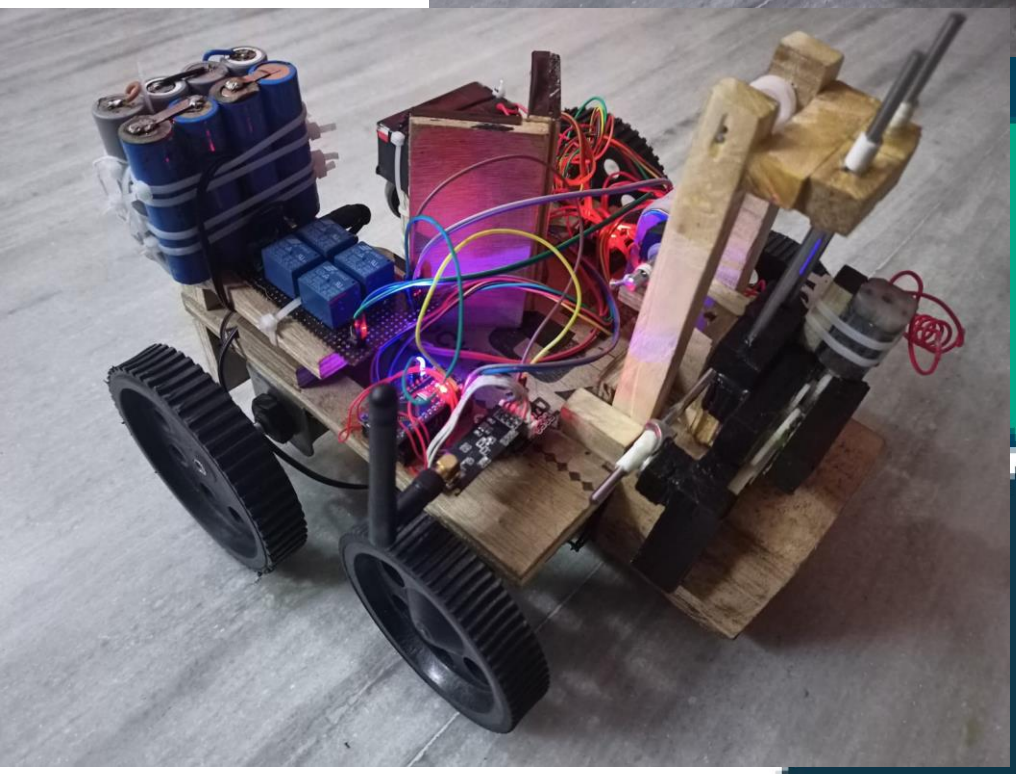


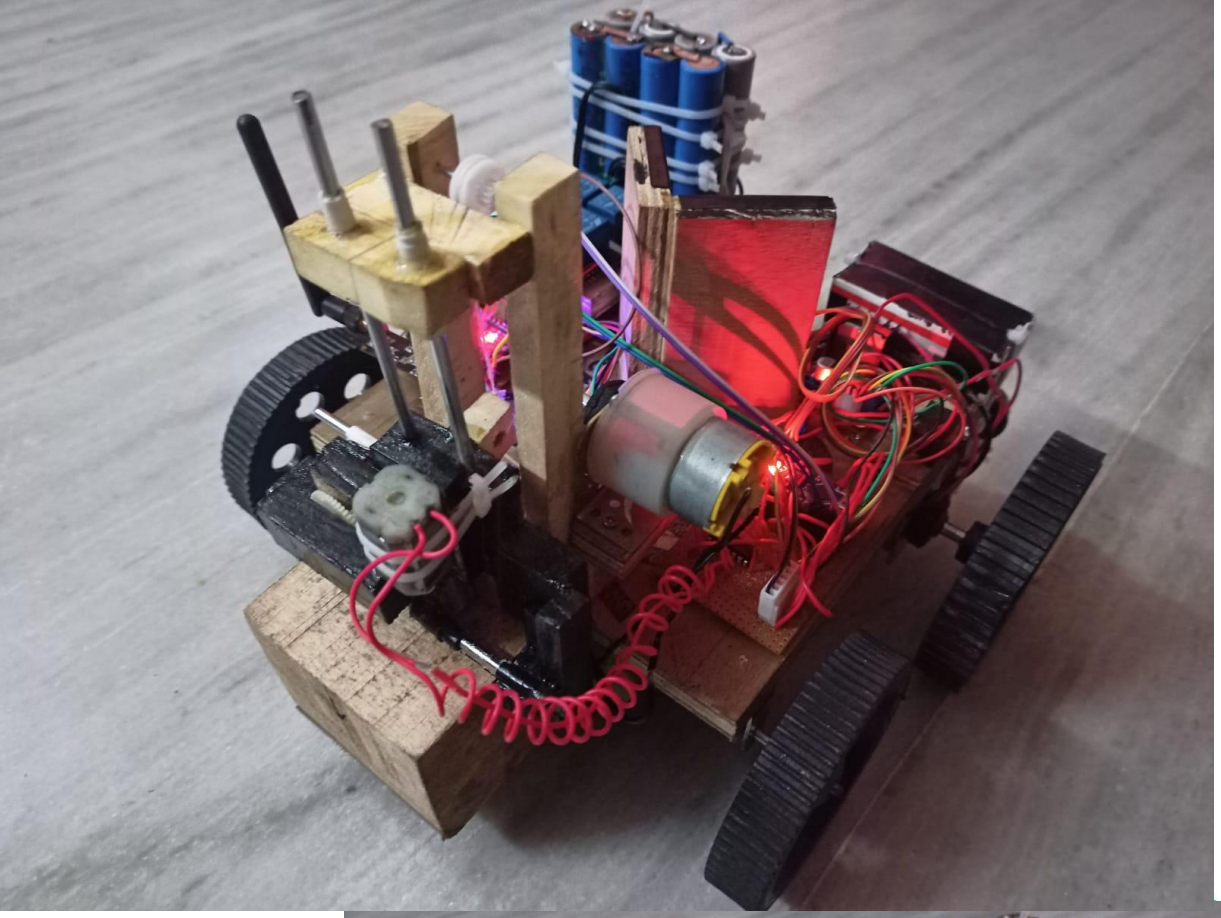


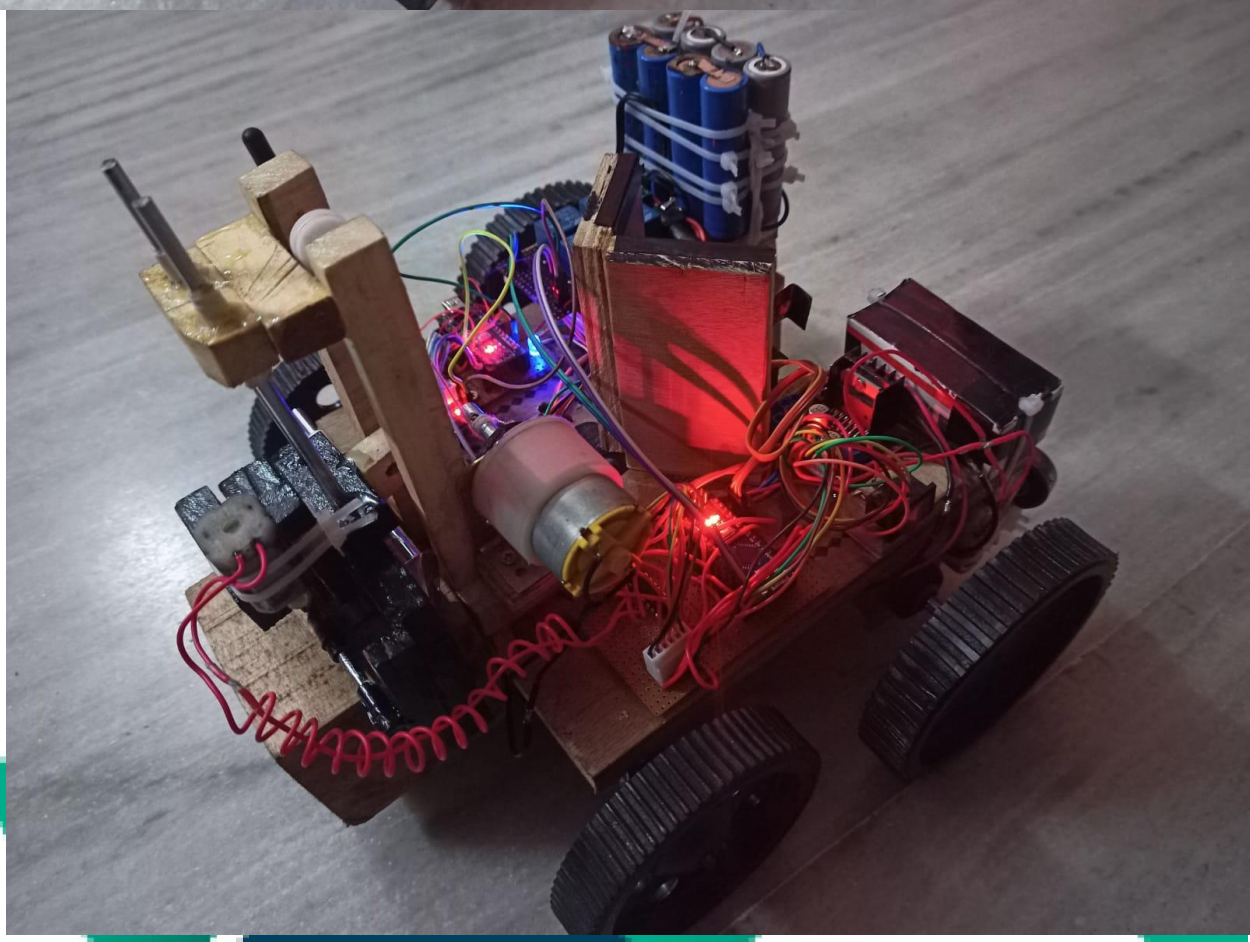












THANK YOU