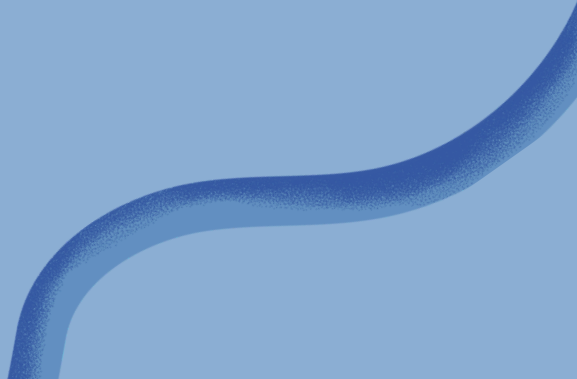
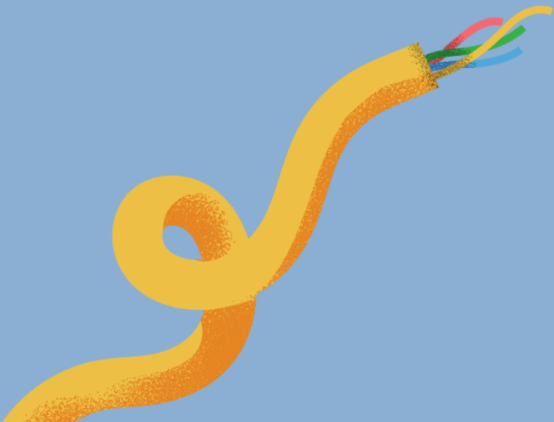





FIRE FIGHTER

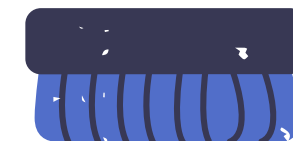
Supervisor: Dr. Luai Malhis
Students:
Alaa Ajaj & Zena Barboor





Content

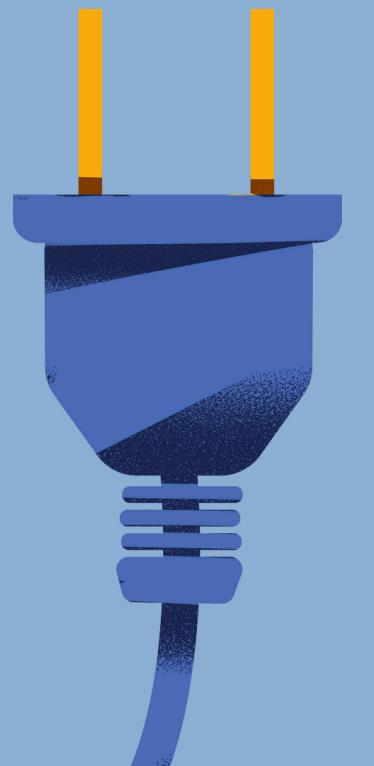
- Problem
- Solution
- Features
- Motivations
- Hardware Modules
- Structure
- Mobile Application
- Future Work





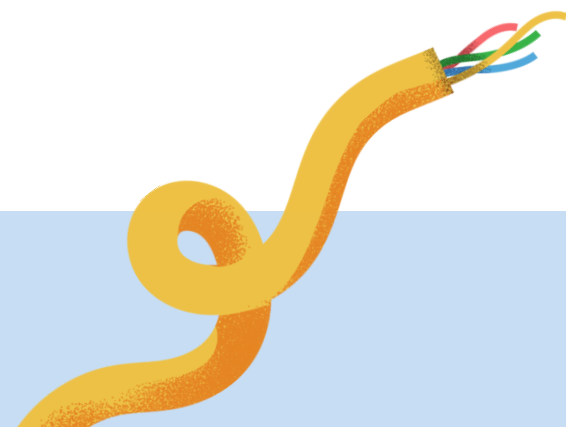
Problem

Warehouses faced significant risks of severe damage and prolonged operational disruptions due to slow detection and response to fires and gas leaks.



Solution

Fire-Fighting
Robot Car for
Warehouse Safety



Features



Automatic Gas Detection

The system detects gas leaks in the warehouse, activates alarms, and operates exhaust fans to ensure safety.

1



Fire Detection & Suppression

The flame sensors detect fire, activate alarms, and send signals to the fire-fighting robot car to extinguish the fire.

2

Remote Monitoring & Alerts

The system sends notifications and updates to the Blynk app, allowing remote monitoring of gas leaks and fires.

3

Features Cont.



Autonomous Robot Navigation

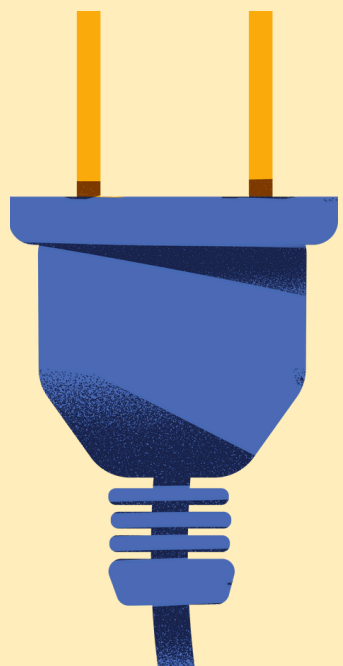
The robot car navigates the warehouse to locate and extinguish fires autonomously, using distance and flame sensors.

4

Water Pump System

The robot car has a water pump and servo mechanism to effectively spray water on the detected fire until it is extinguished.

5



Motivations



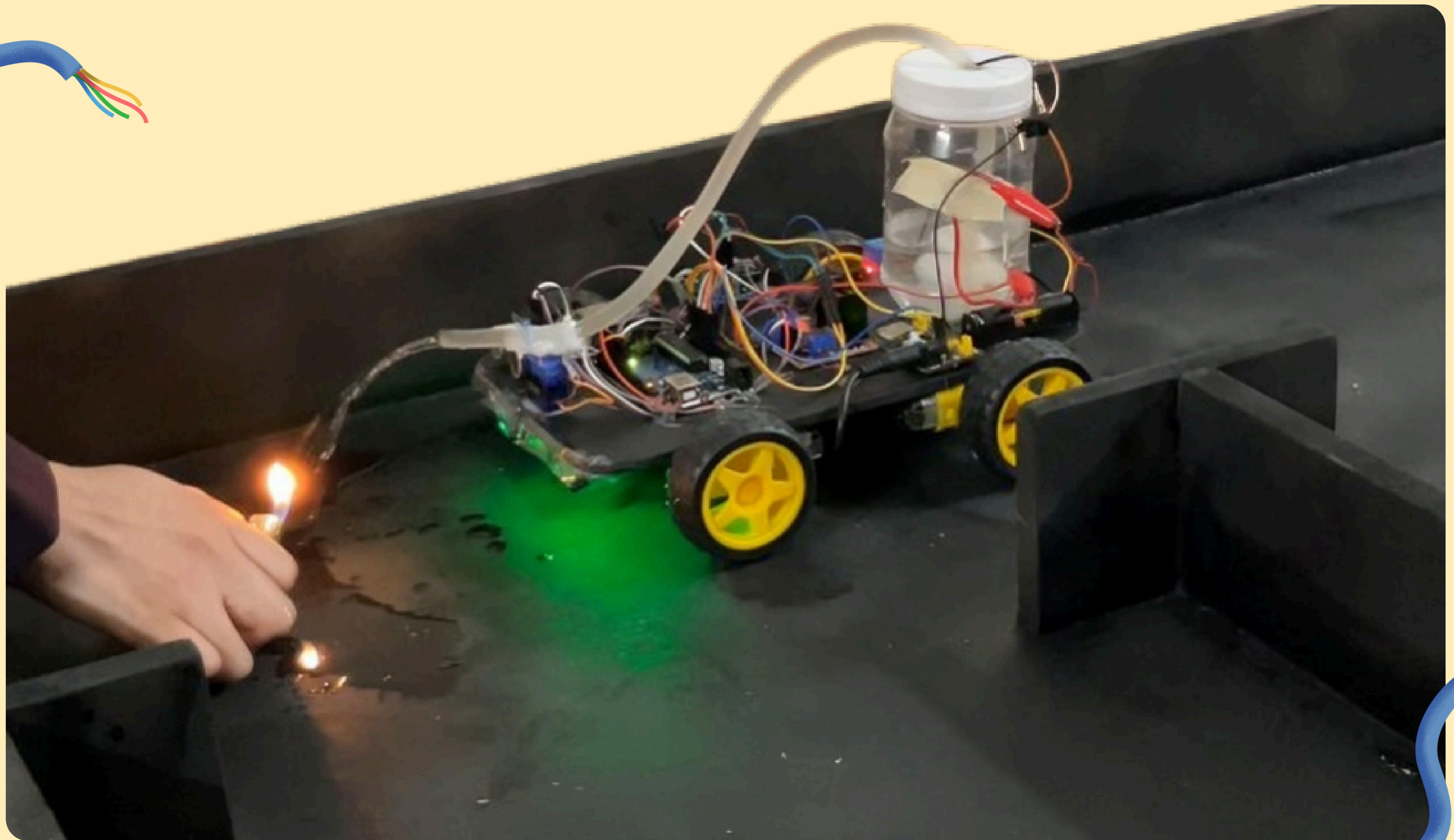
Enhancing Safety
in Industrial
Environments

Efficiency and
Automation

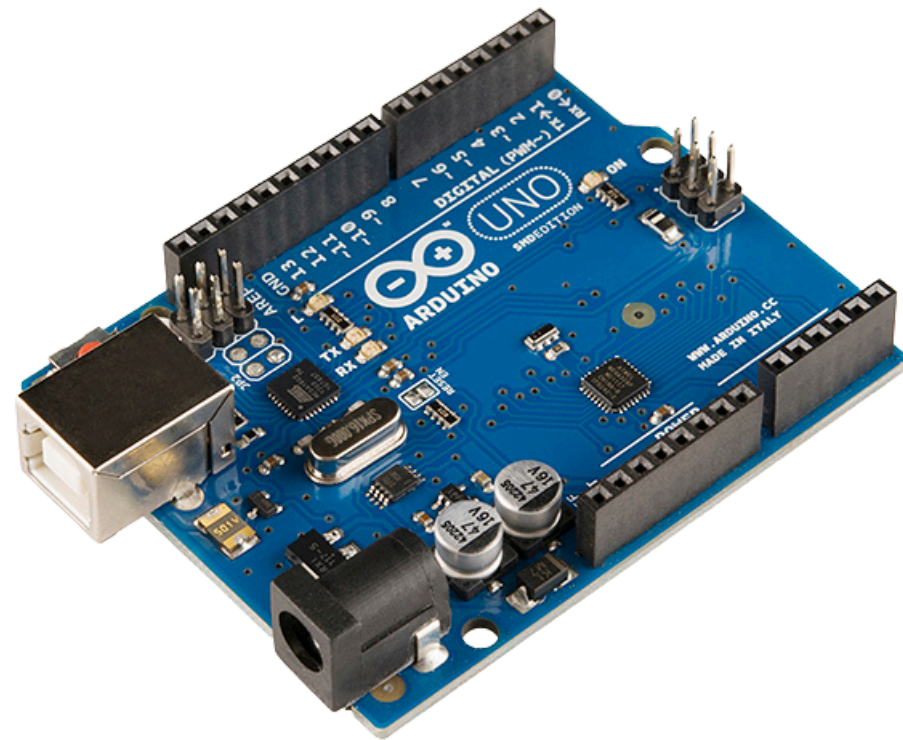


Quick Response

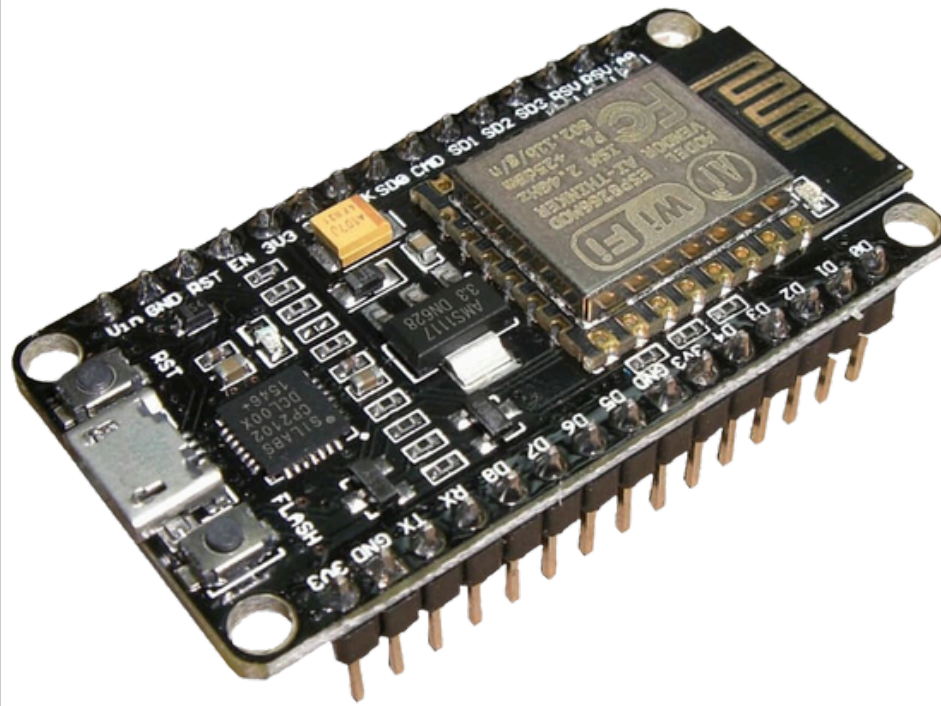




Hardware Modules



Arduino Uno



ESP8266

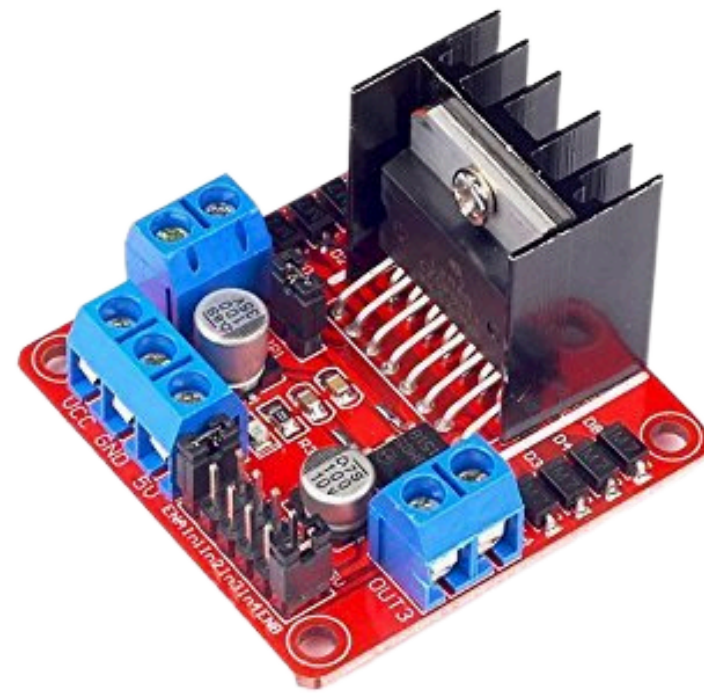


Ultrasonic Sensor

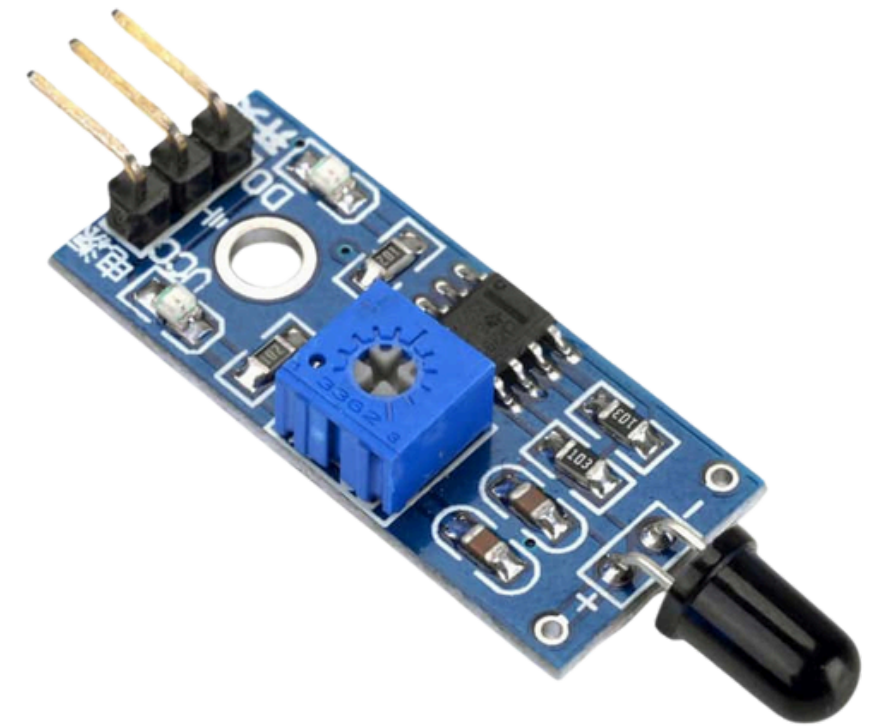
Hardware Modules



DC Motors
With Wheels



H-Bridge
L298N



Flame Sensor

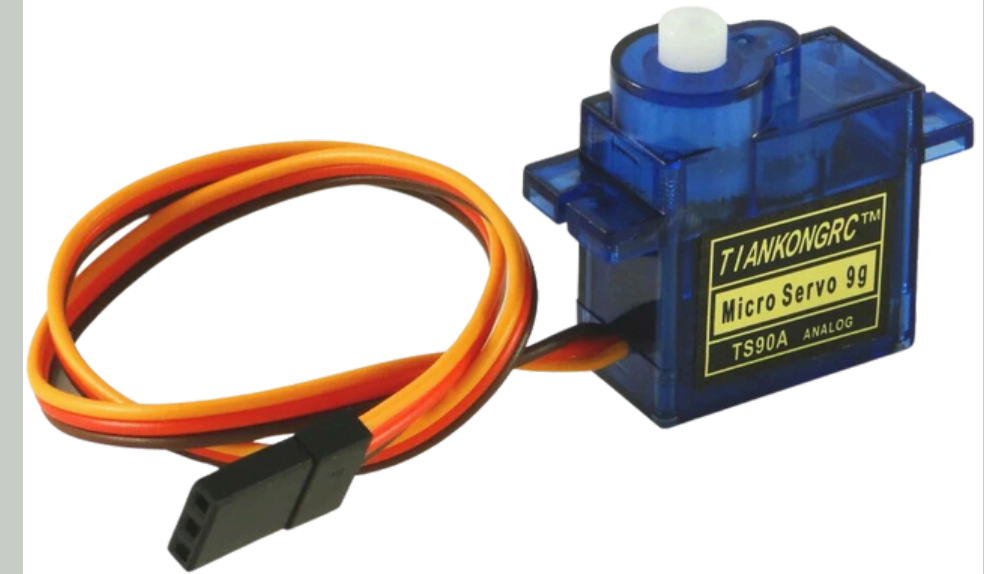
Hardware Modules



Water Pump



Pipe

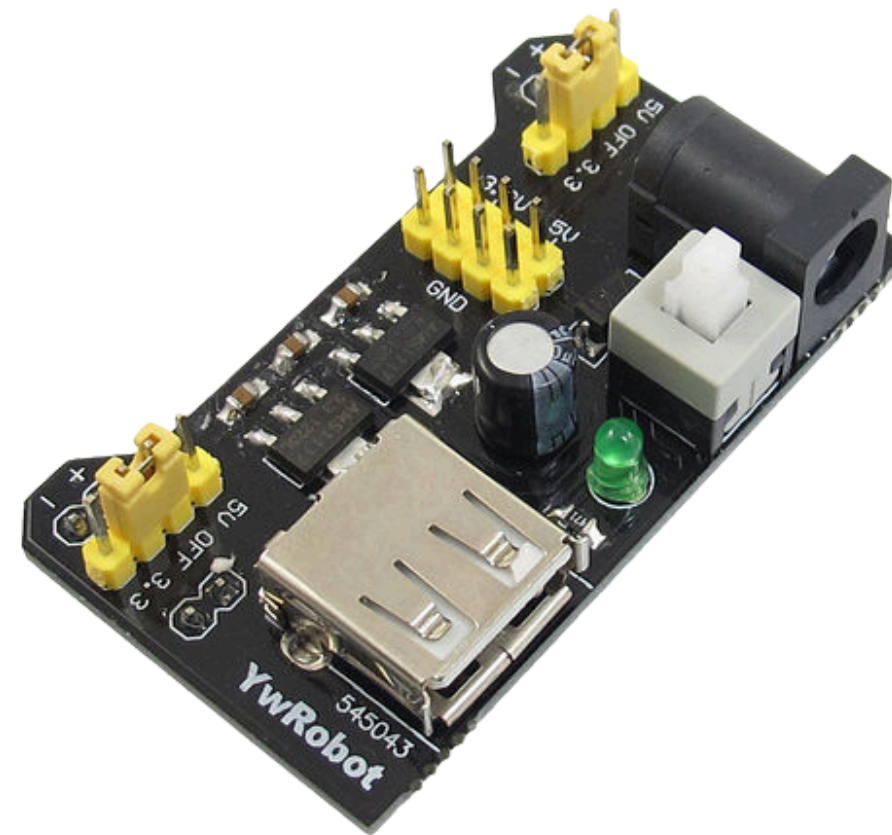


Servo Motor

Hardware Modules



Relay



Voltage regulator

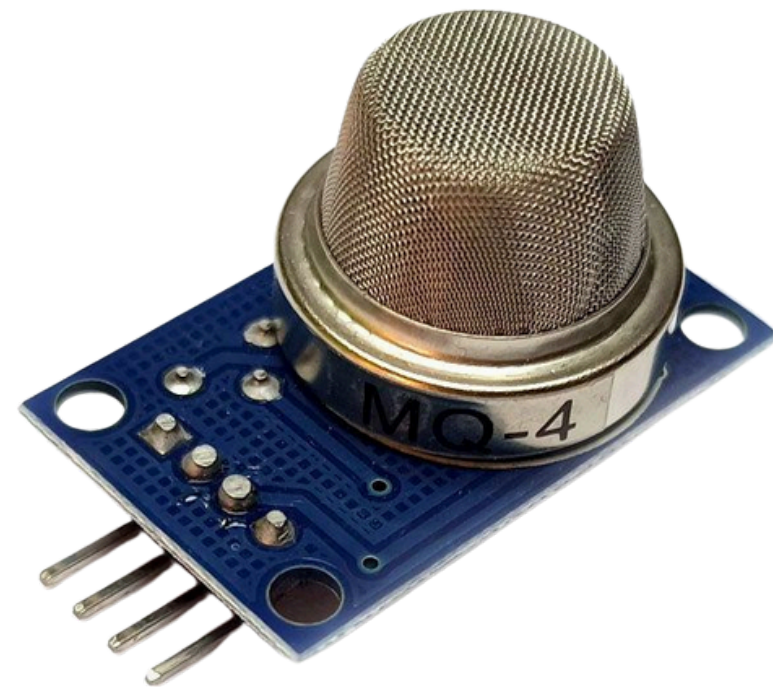


Lithium Batteries

Hardware Modules



Extractor Fan



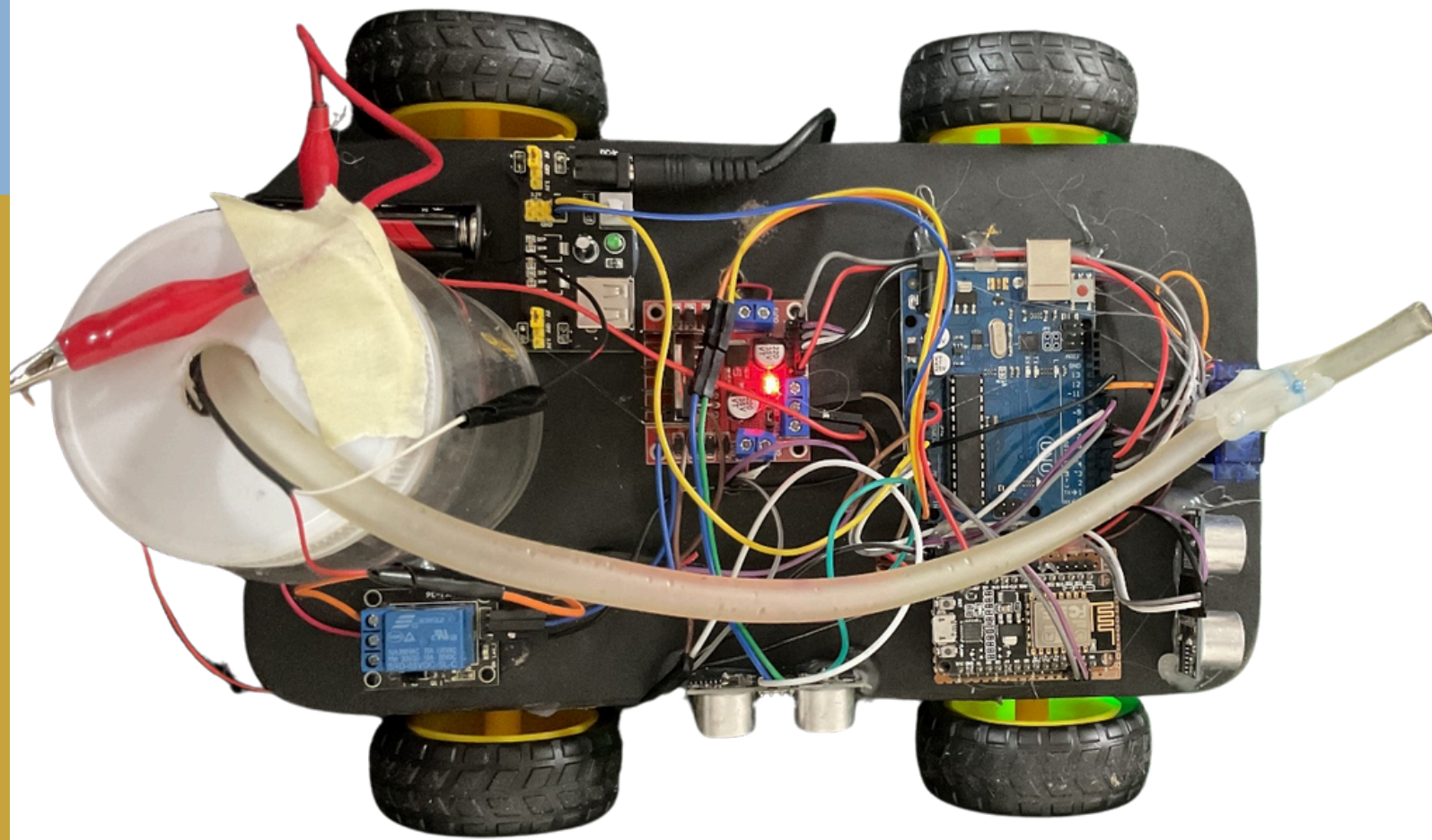
MQ-4 Gas Sensor



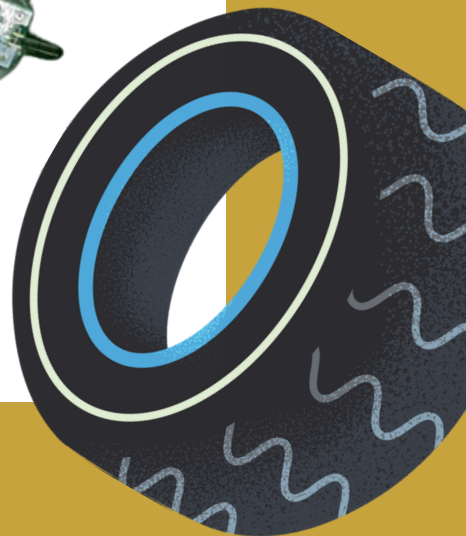
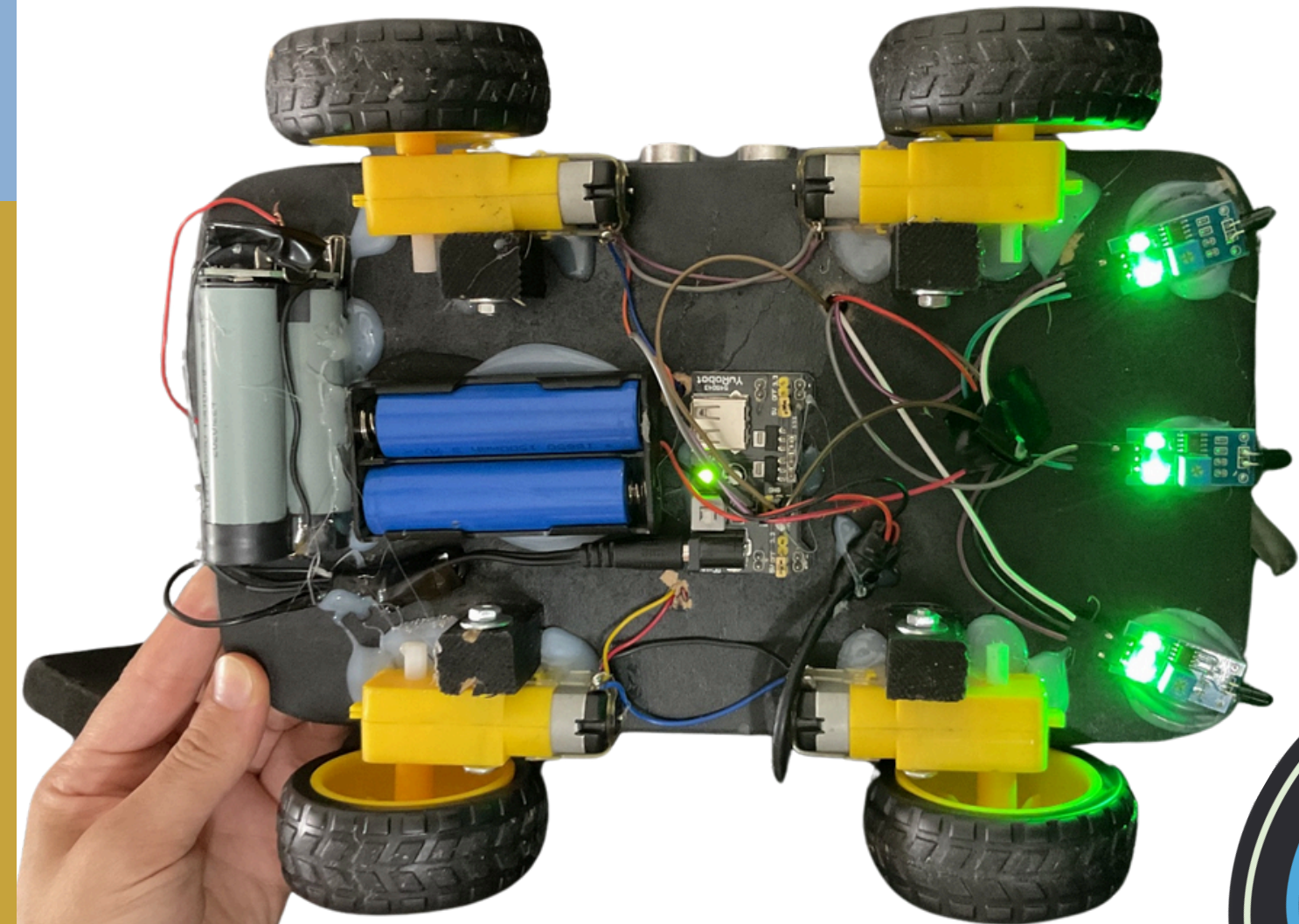
Buzzer

Car Structure

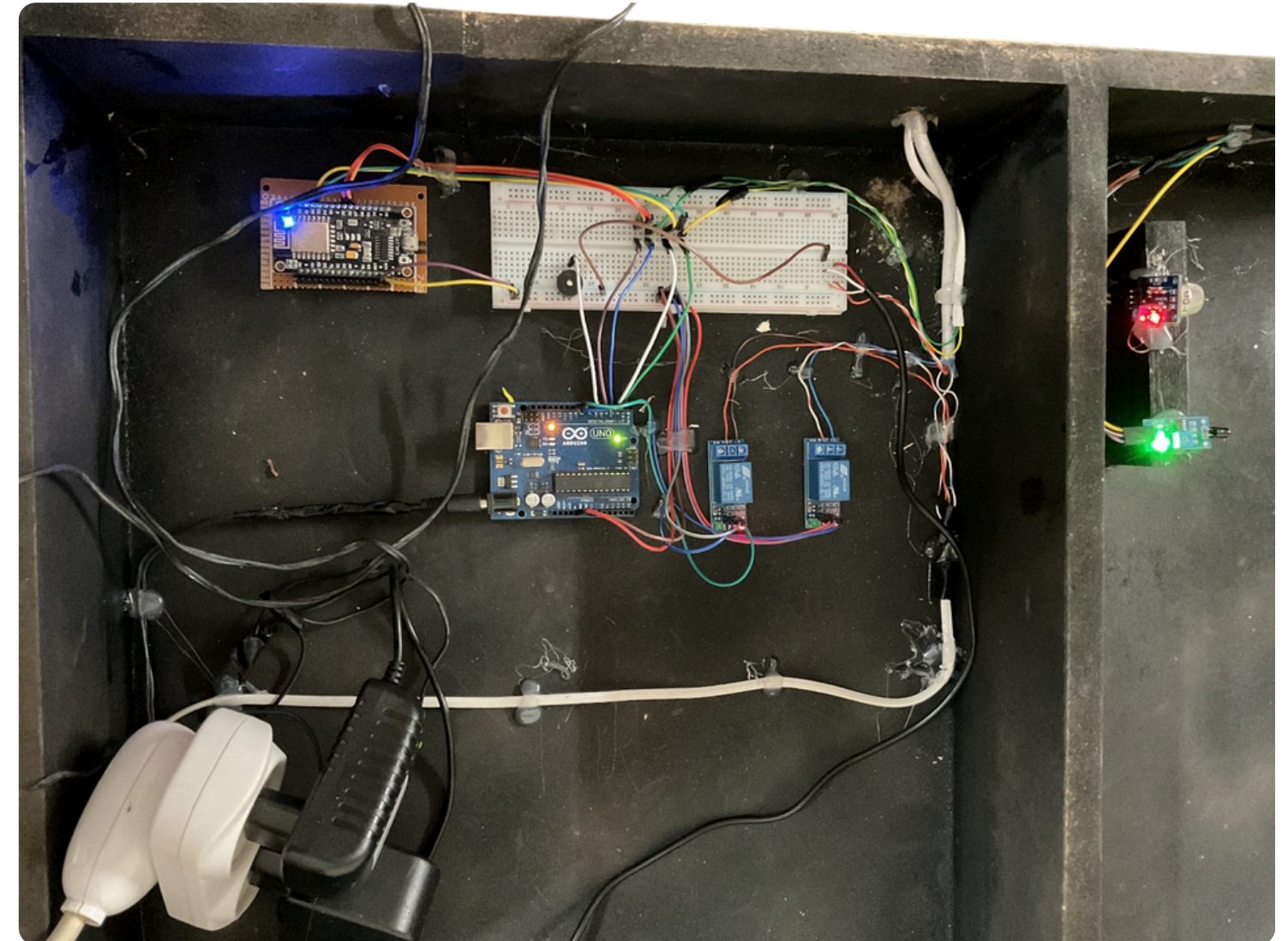
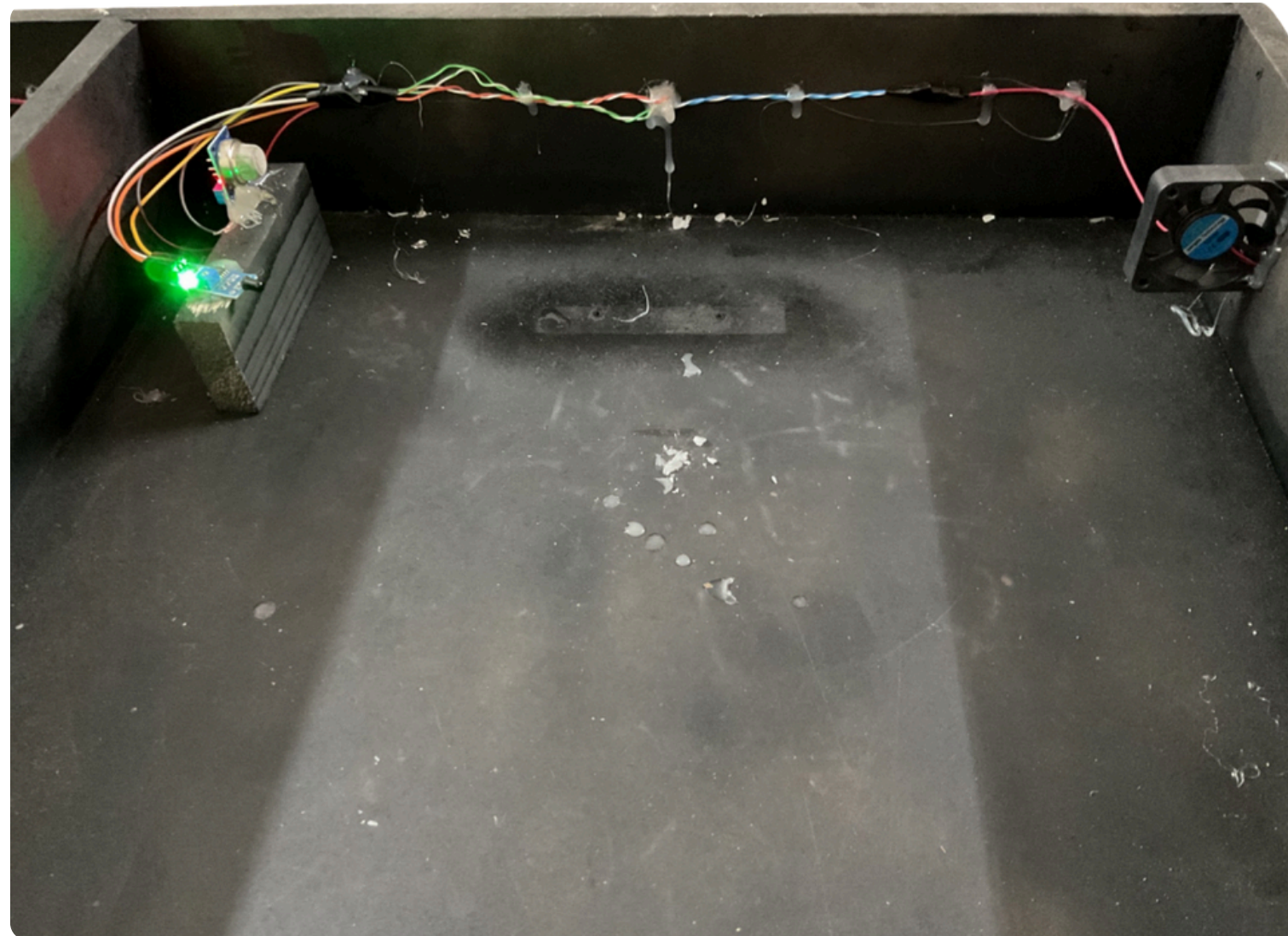
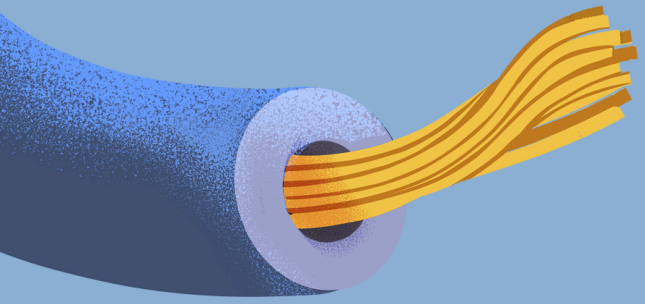
Car Top View



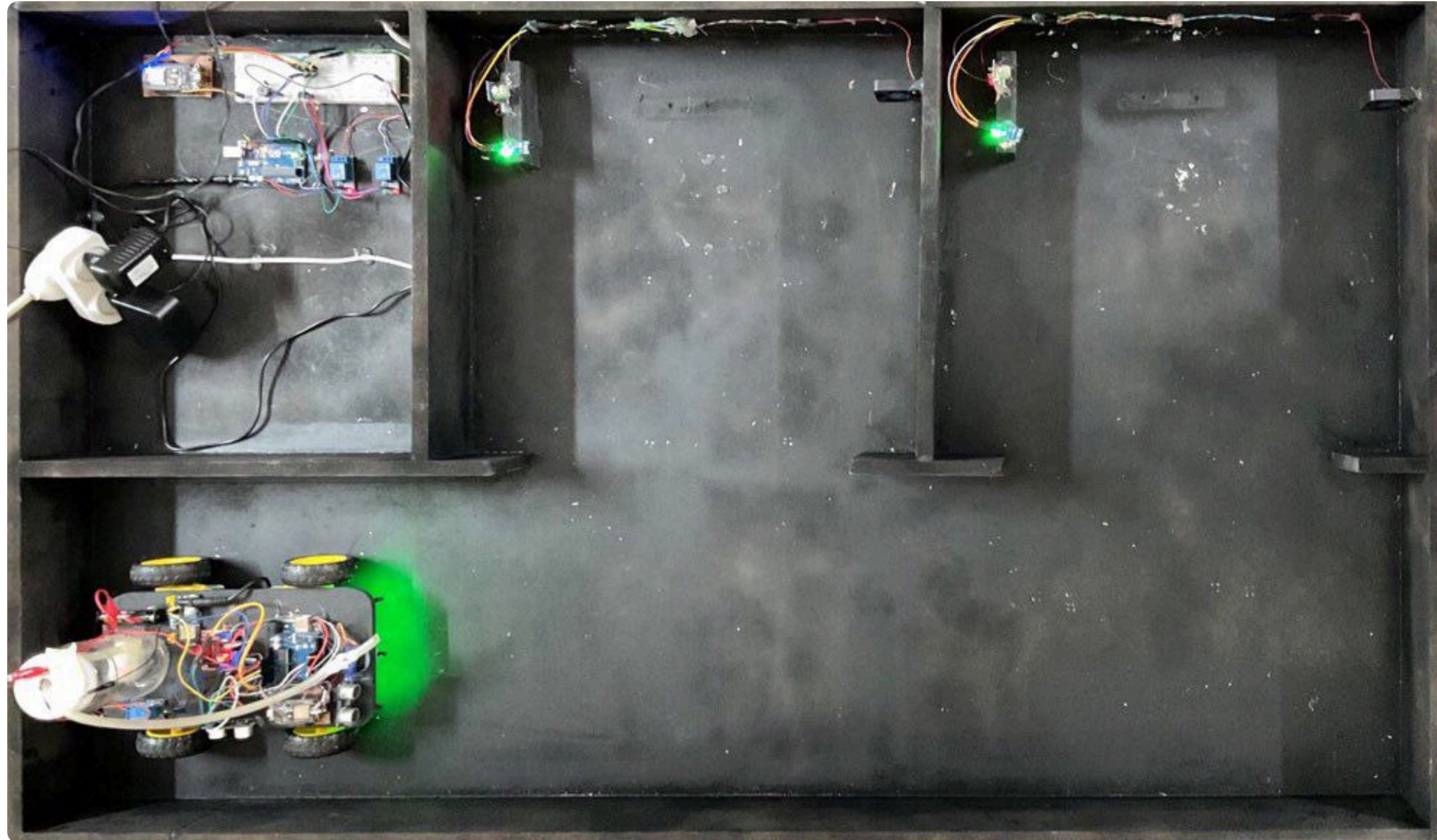
Car Bottom View



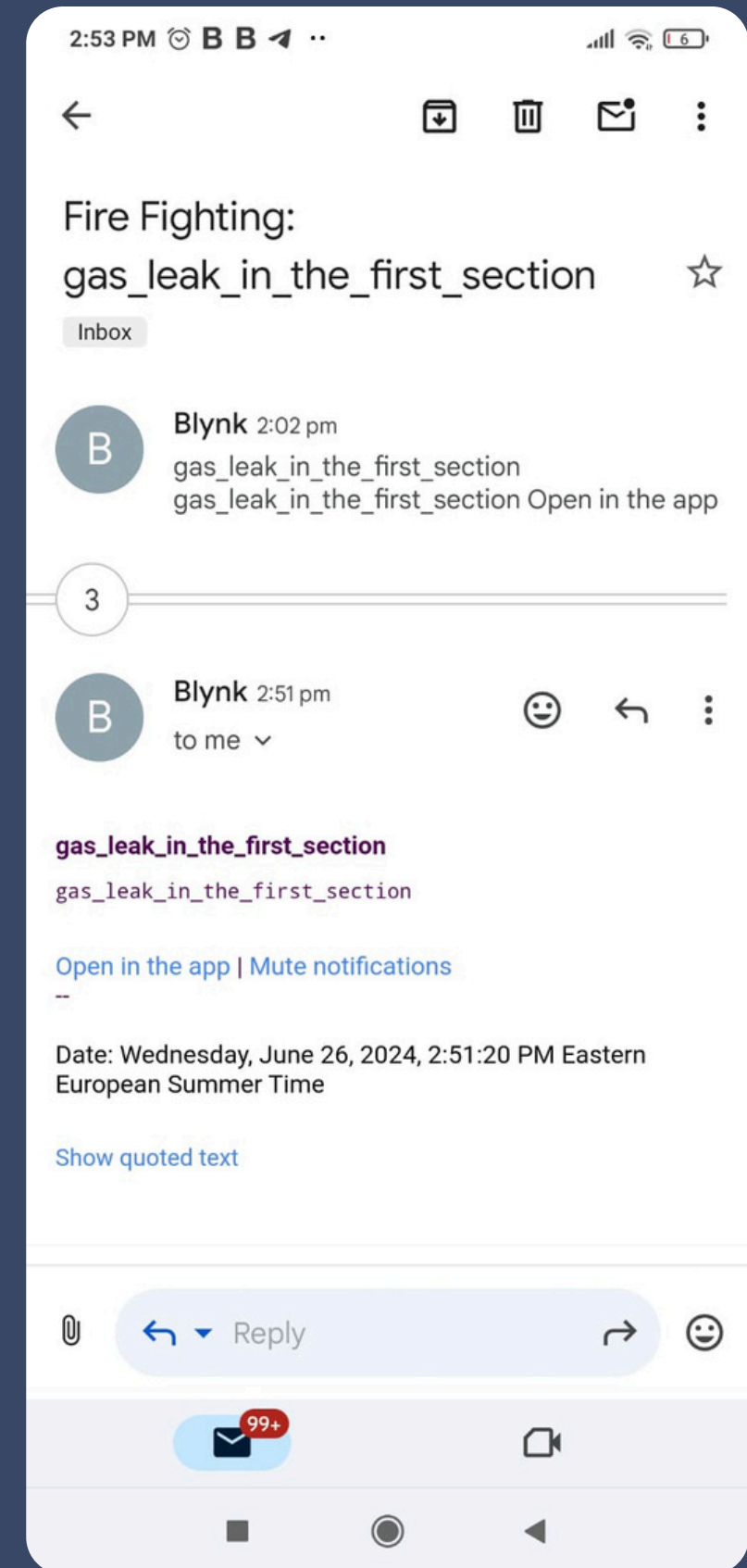
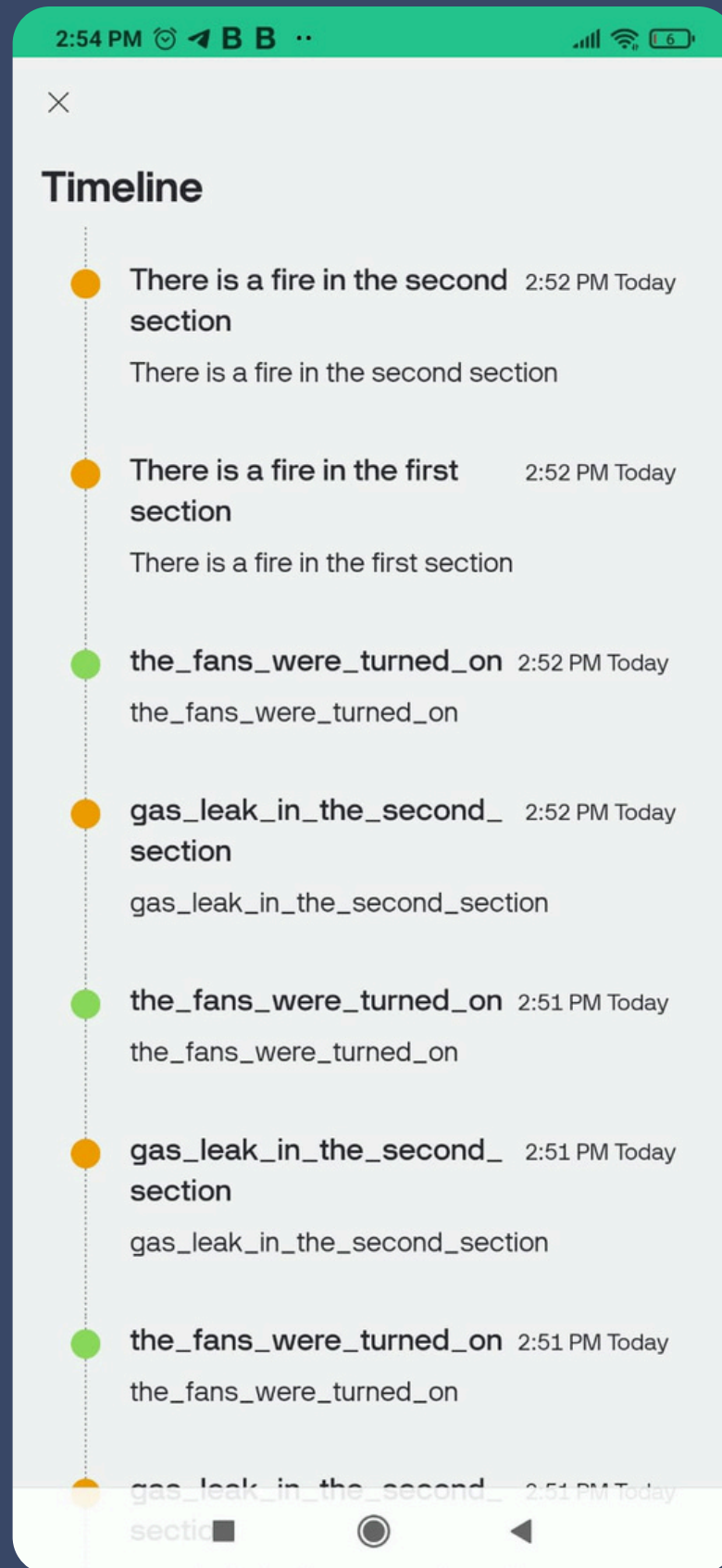
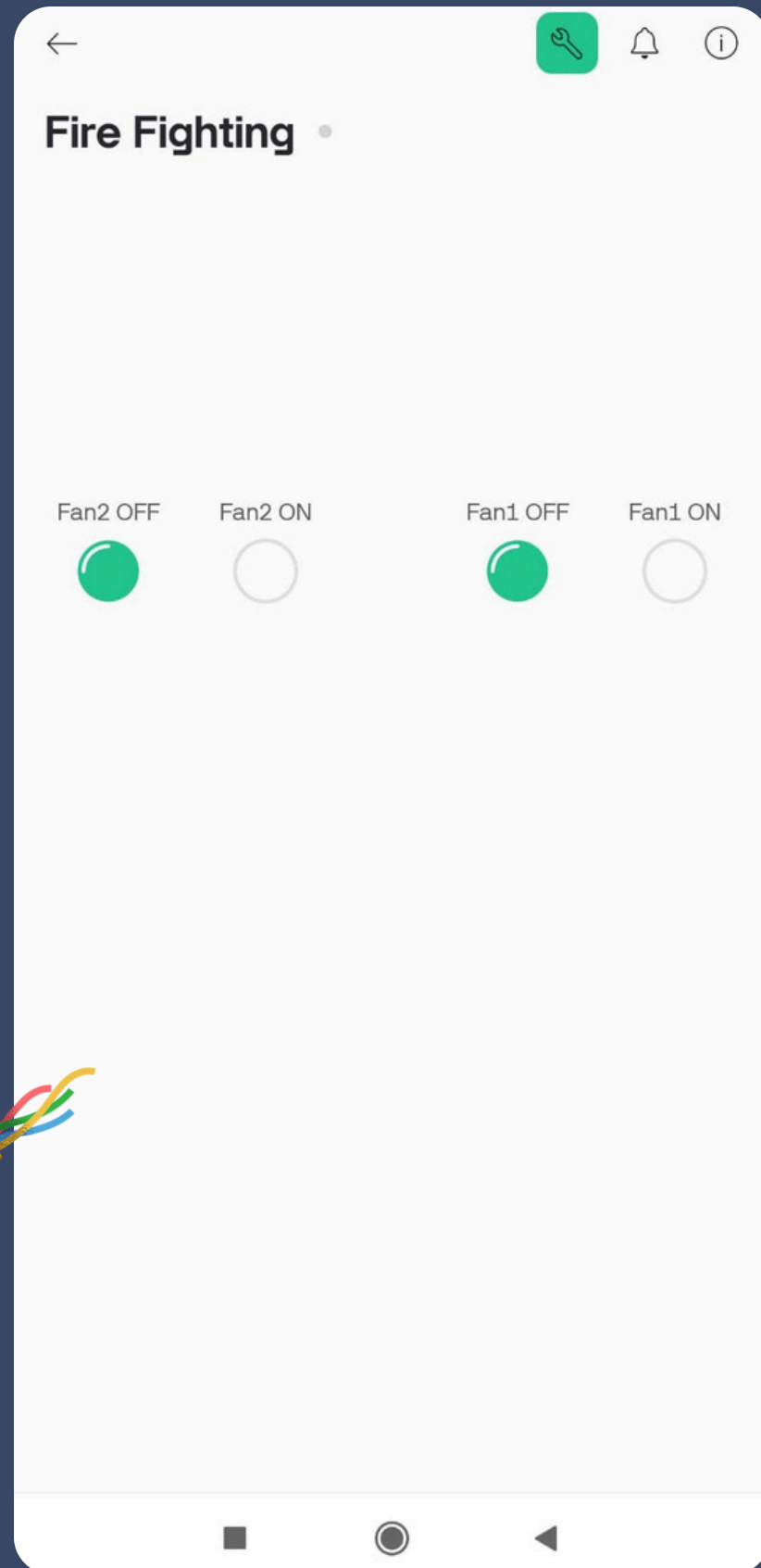
Rooms Structure

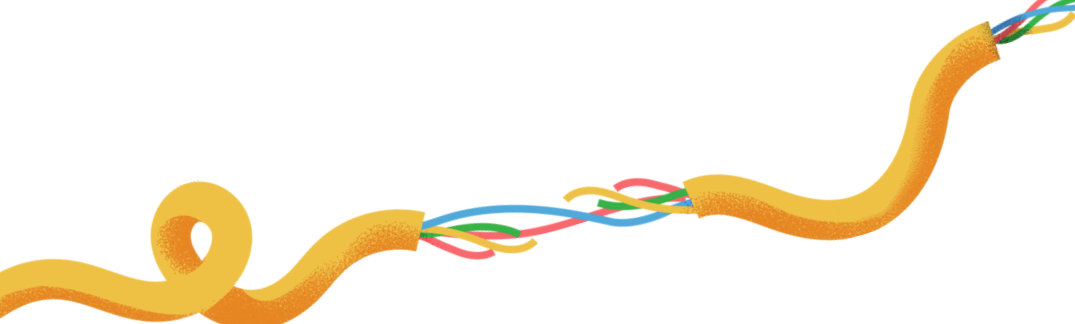


Full Warehouse Sample Body

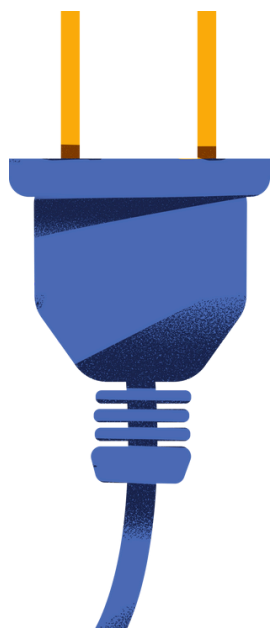


Mobile App





Future Work



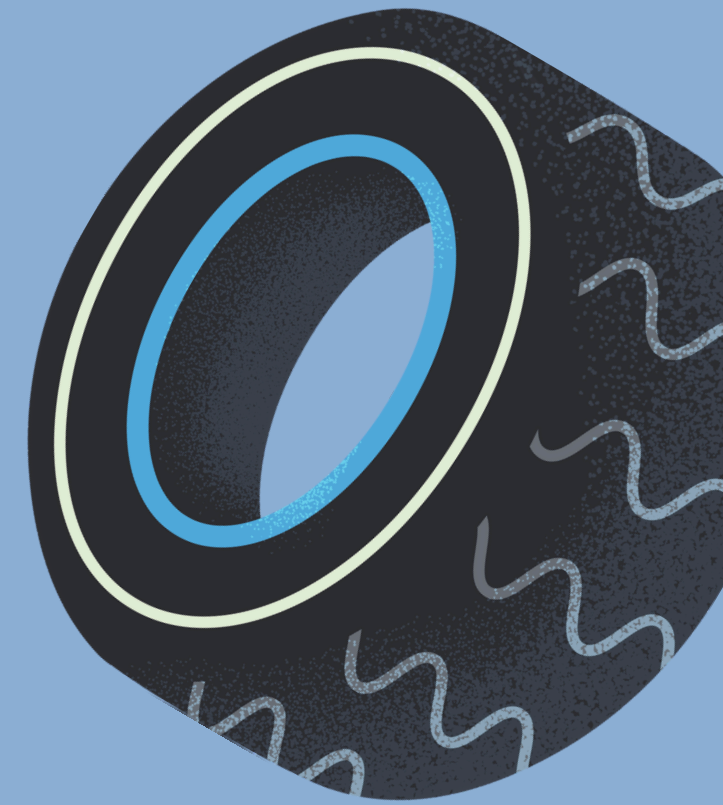
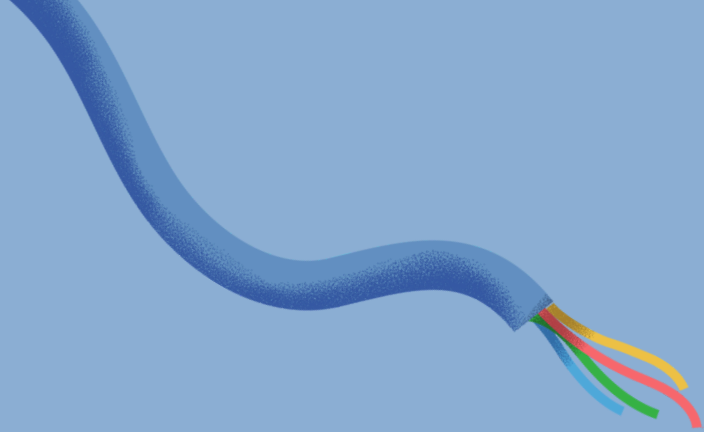
Advanced Navigation



AI Integration



User Interface



THANK YOU

