



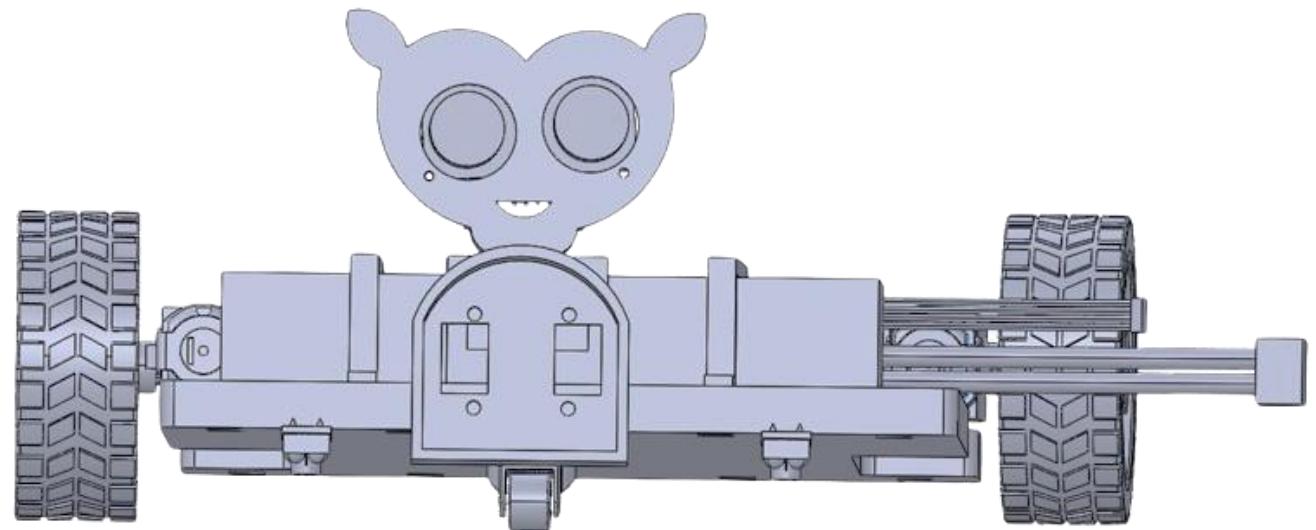
# WELCOME TO OUR PRESENTATION

Arduino base Autonomous vehicles

Course Title: Prototyping and System Engineering

Team: A3

Members:  
John Abiagam  
Omar Latif  
Md Akram

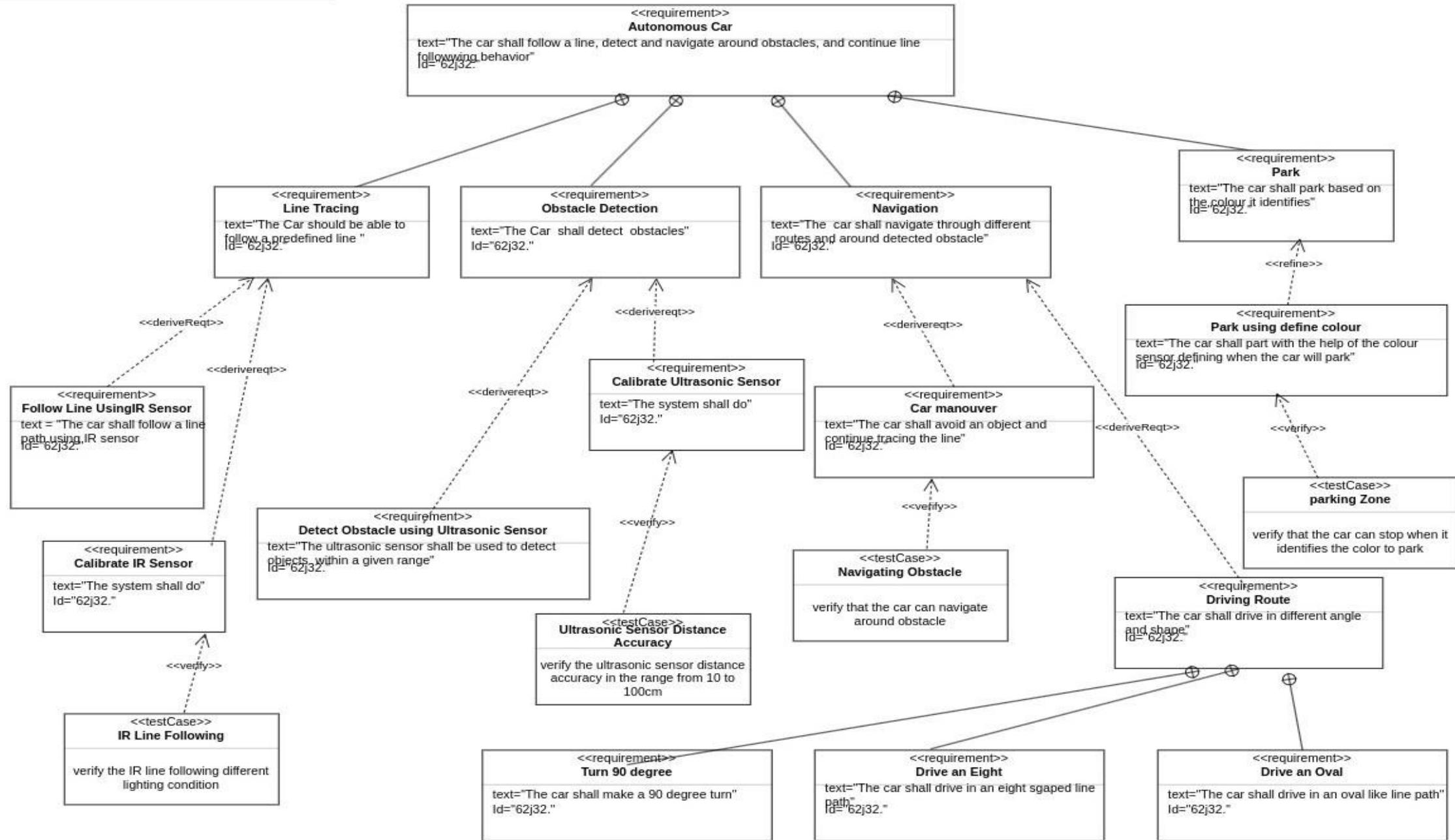


# Motivation

- **Arduino base Autonomous vehicles**
- **Line detection and following**
- **Obstacles detection and avoidance**
- **Color identification**
- **Parking vehicle**

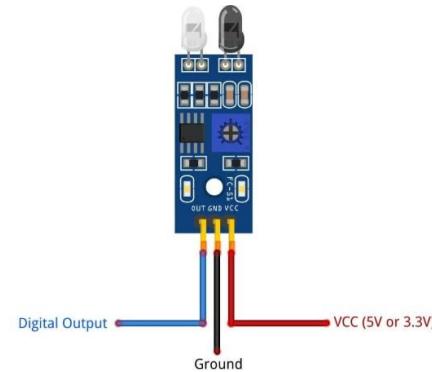


req [package] Autonomous Vehicle [Requirement Diagram]

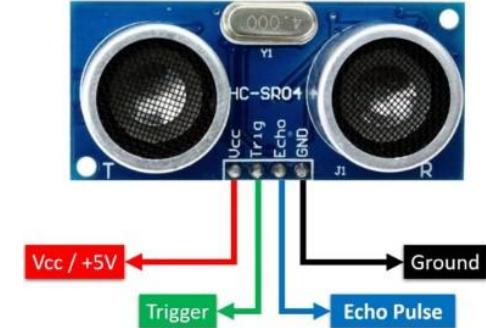


# HARDWARE COMPONENTS

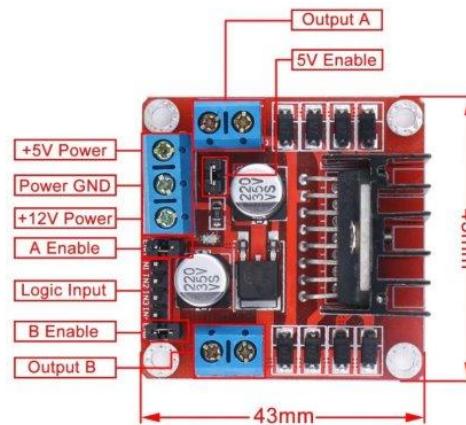
- Arduino Uno / Nano
  - Color Sensor
  - L298N Motor Driver Module
  - 2x IR Line Sensors
  - Ultrasonic Sensor (HC-SR04)
  - 2 DC Motors + wheels
  - Power supply (battery pack)
  - Chassis
  - Jumper wires



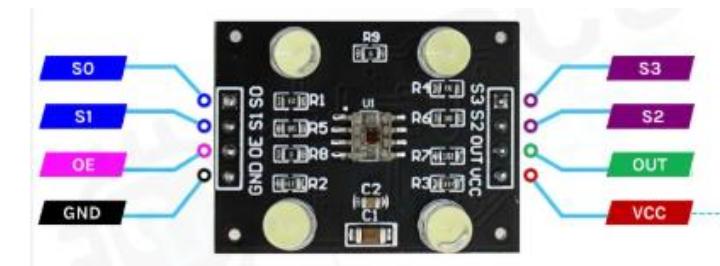
IR Sensor



## Ultrasonic Sensor

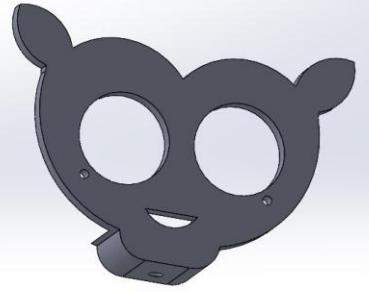


## L298N Motor Driver

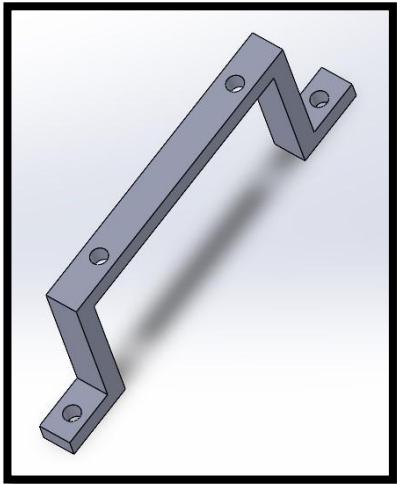


## TSC3200 Color sensor

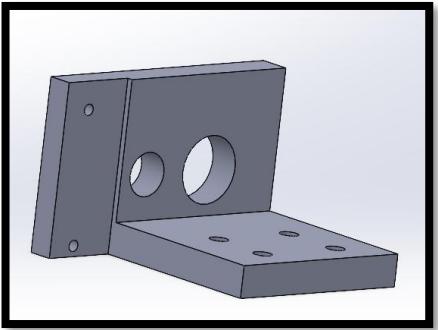
# 3D Design



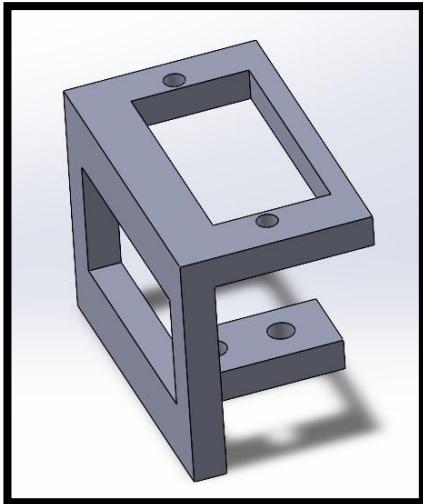
**Ultrasonic Sensor holder**



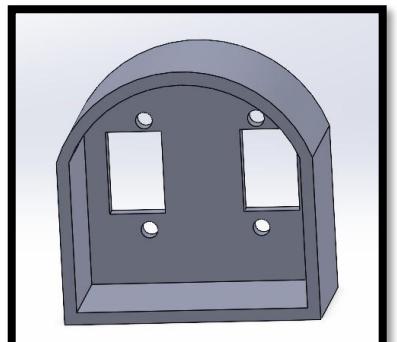
**Battery holder**



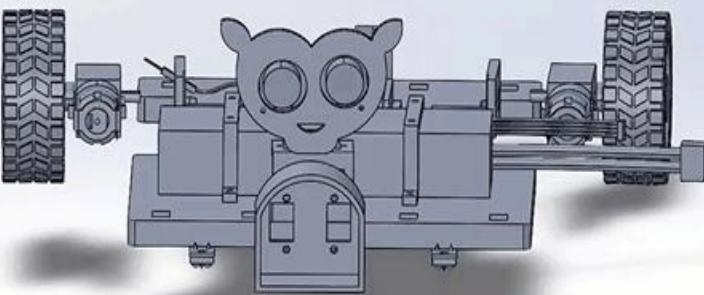
**Motor holder**



**Servo holder**

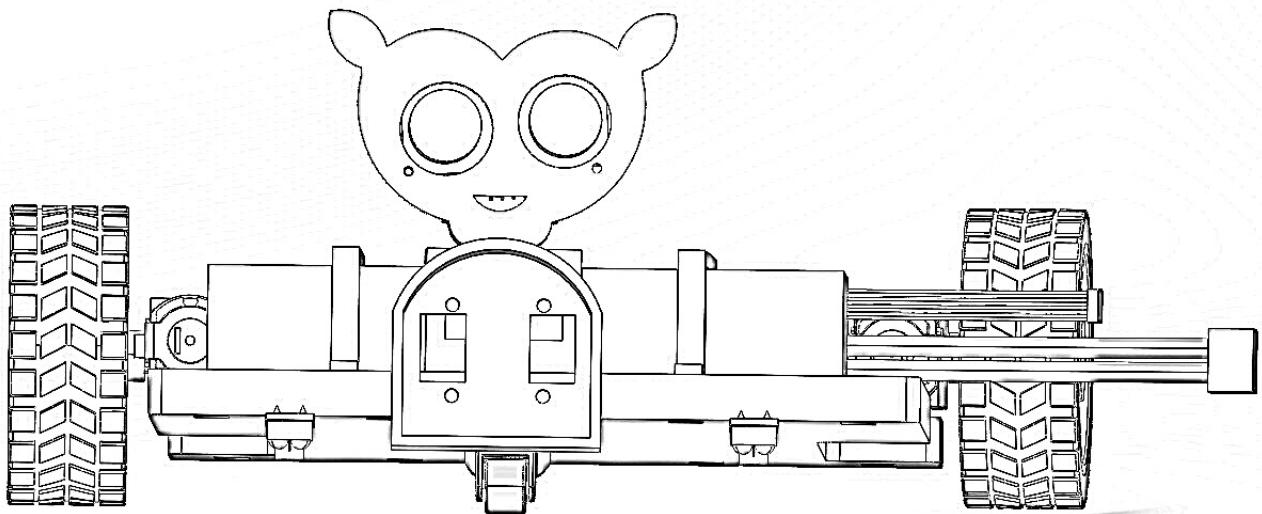


**Color Sensor holder**

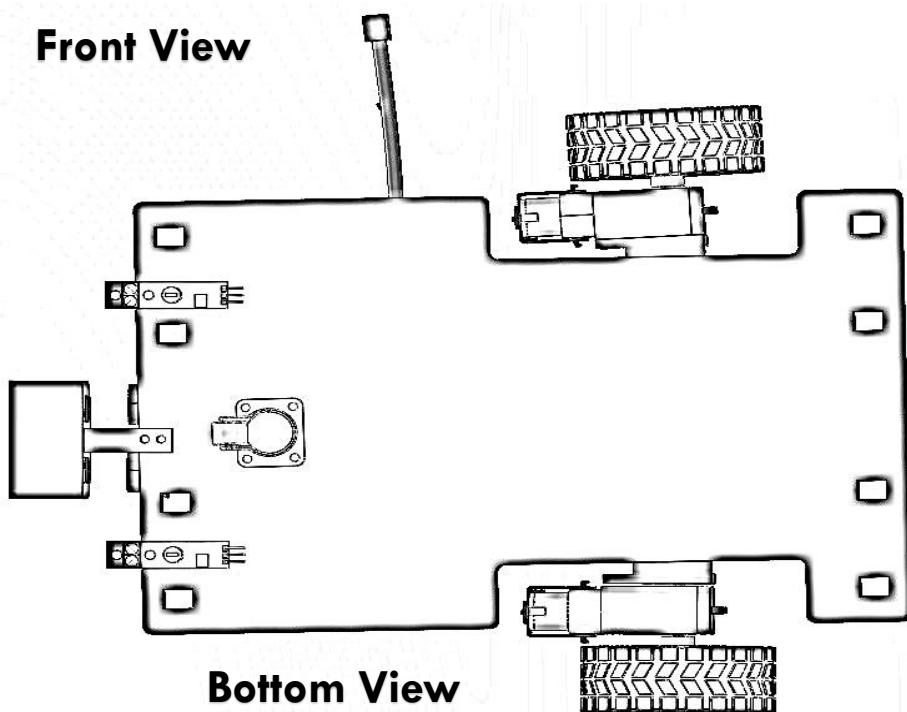


**SOLIDWORKS Motion study and Exploded view**

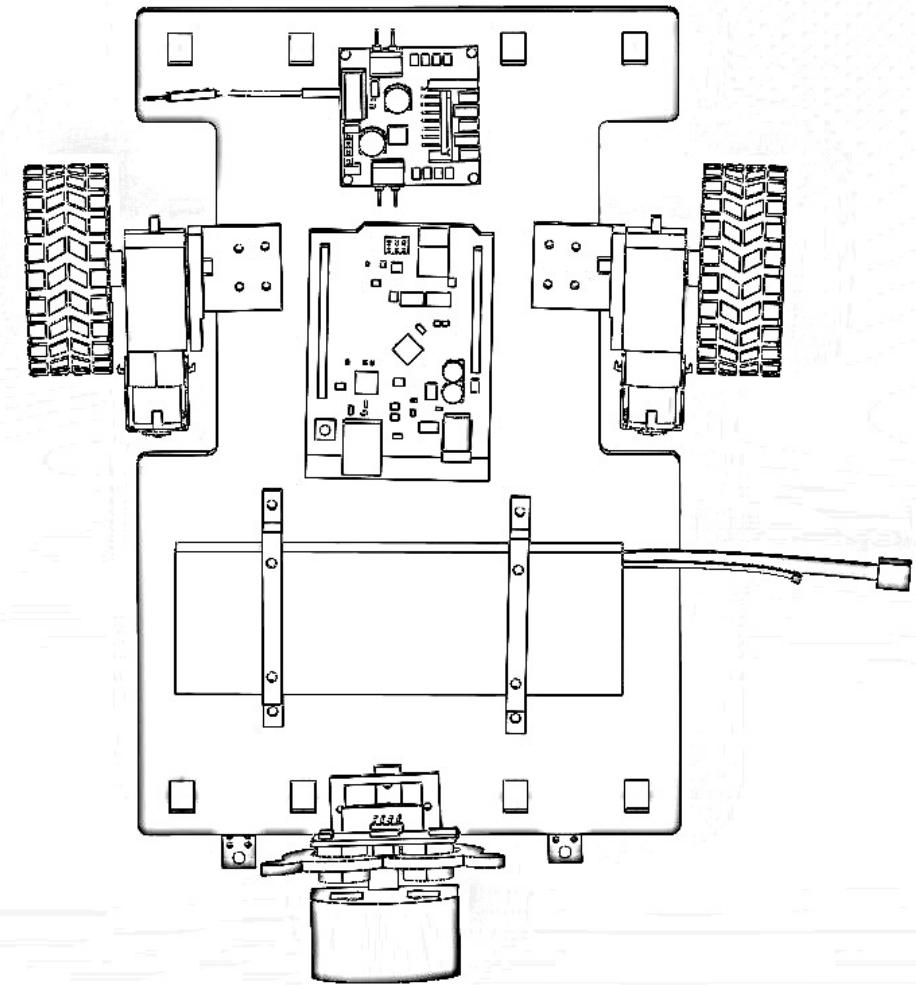
# Paper Sketch



**Front View**



**Bottom View**



**Top View**

# Assembly Process

01

## Checklist Observation

- ✓ All 3D parts are present
- ✓ All components are present
- ✓ Assembly tools present
- ✓ Paper Sketch present

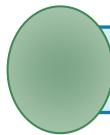


## Components Mounting

- ✓ Cleaning of 3D parts
- ✓ Place components in holder
- ✓ Careful about enough support
- ✓ Place all in main surface
- ✓ Check about weight balance

## Electrical Connection

- ✓ Check datasheet
- ✓ Understand schematics
- ✓ Connect the signal pin
- ✓ Connect power and Ground
- ✓ Double check every connection



# Assembly Process

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## Checklist Observation

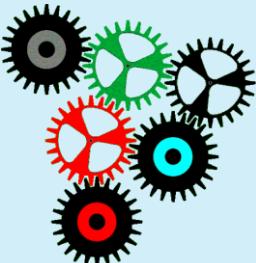
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02

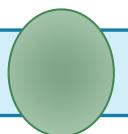
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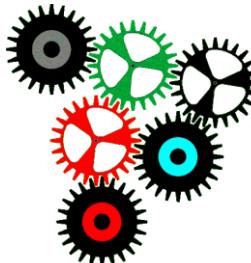
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02

## Components Mounting

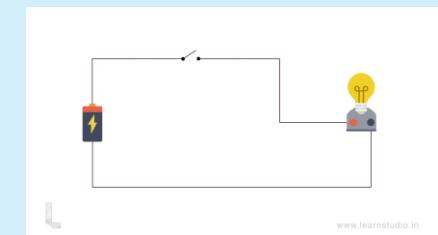
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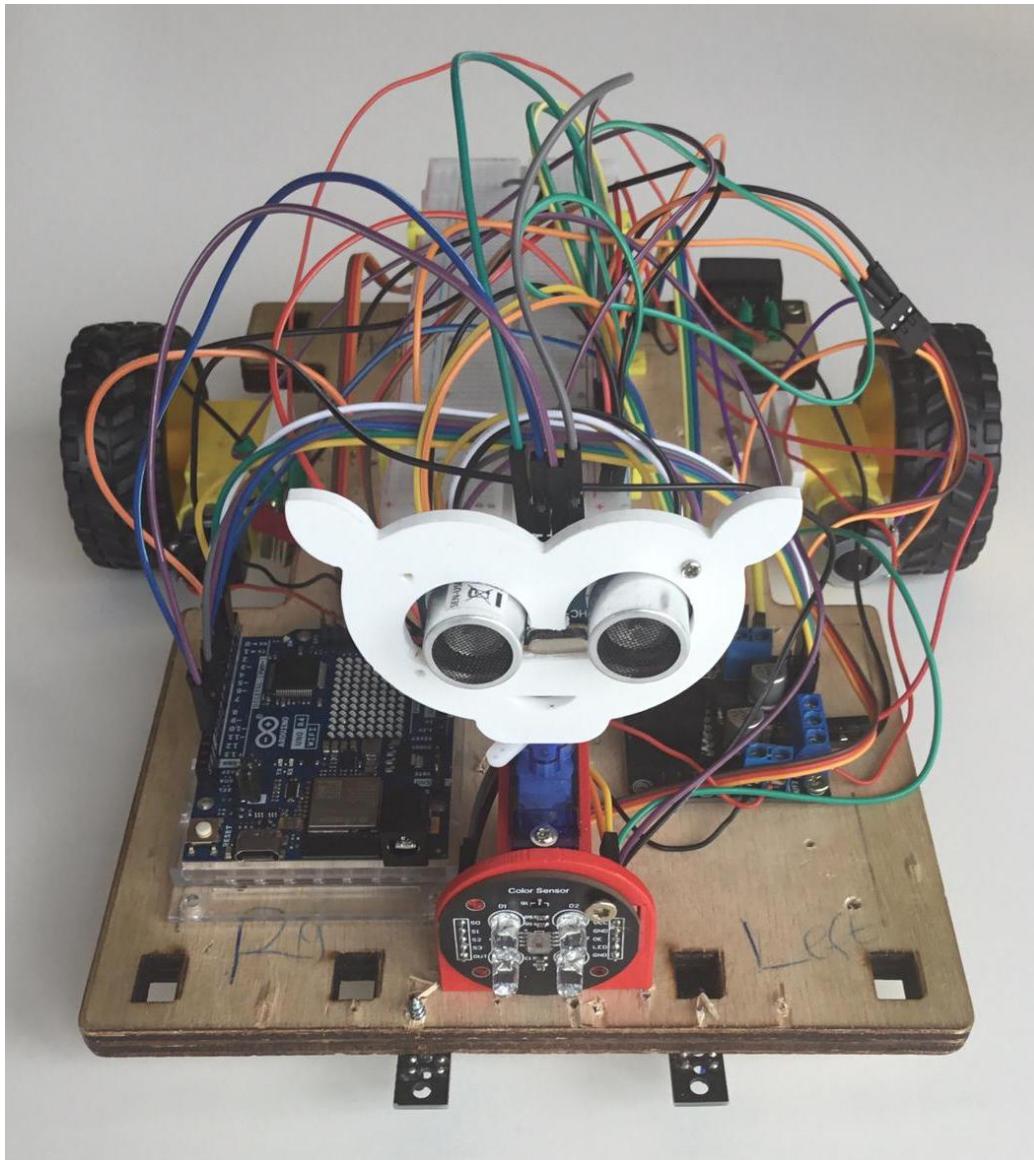
03

## Electrical Connection

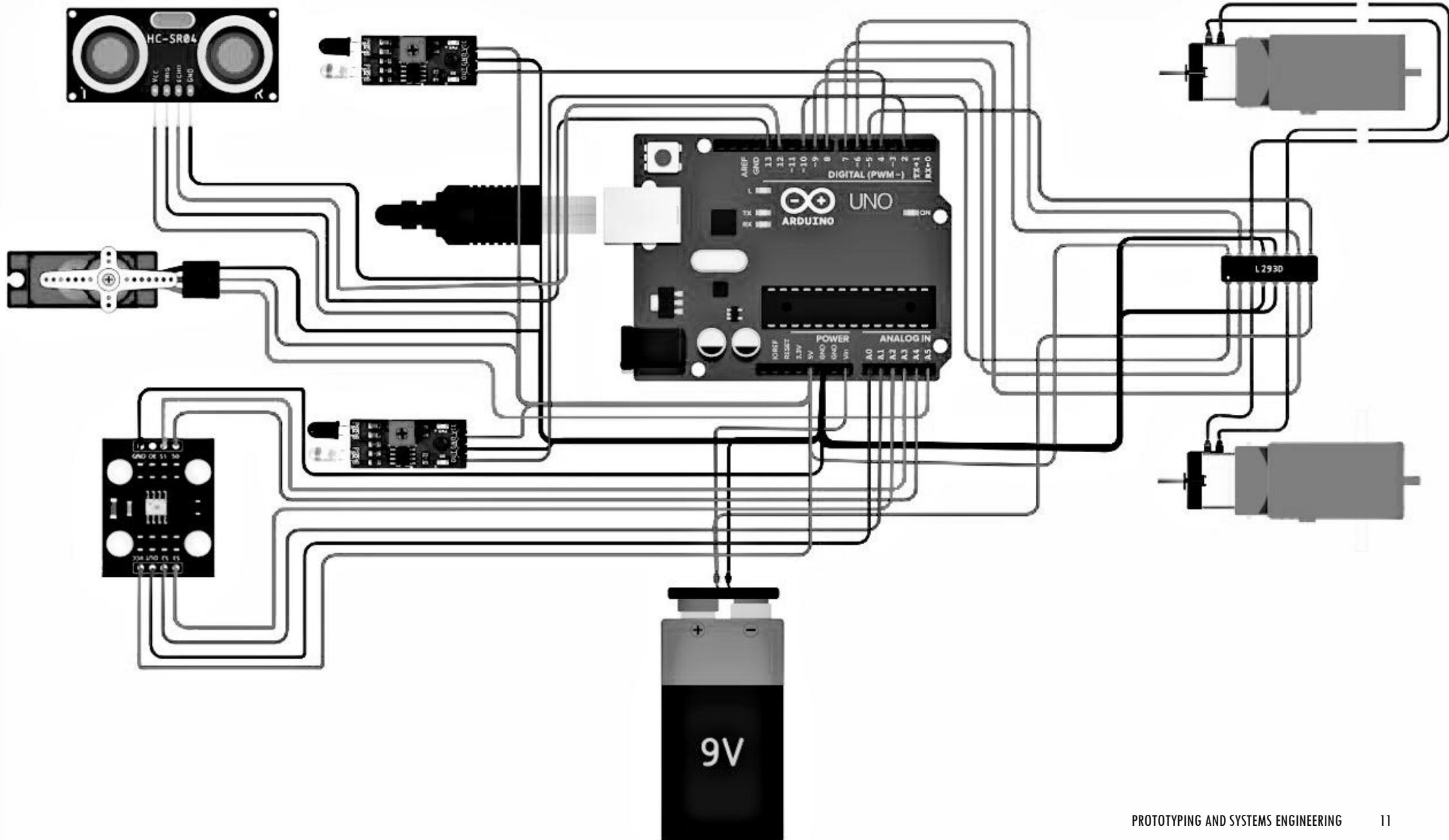
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# Our Final Prototype



# Schematics Diagram



# Thinkercad Simulation

