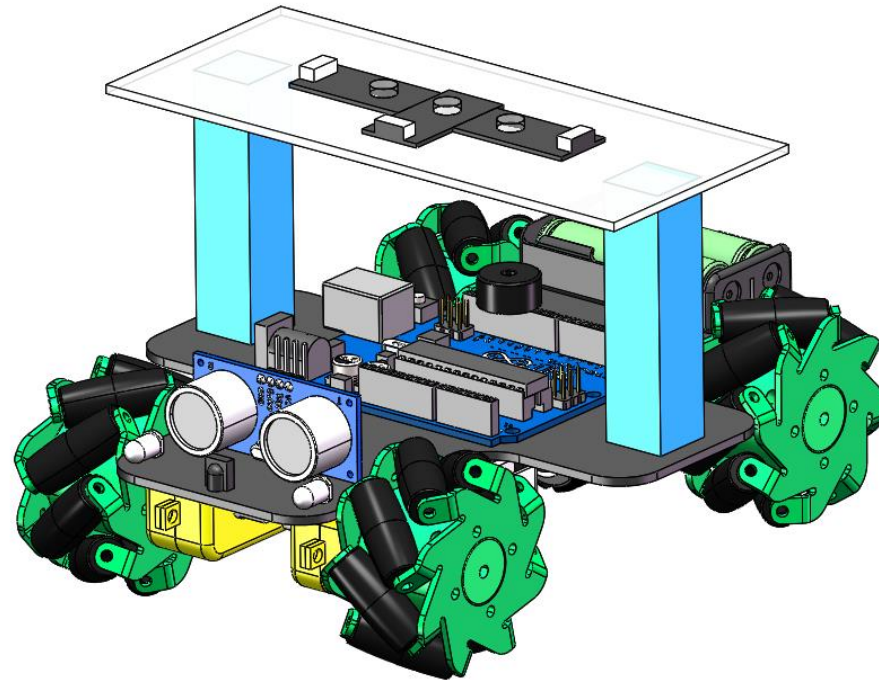


A Laser Tracing Rover

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Xiang Li



Kyrin

Group 9

07/22/2023

A **remote control** rover that can **trace lasers** and help to carry things, as well as **avoiding obstacles**

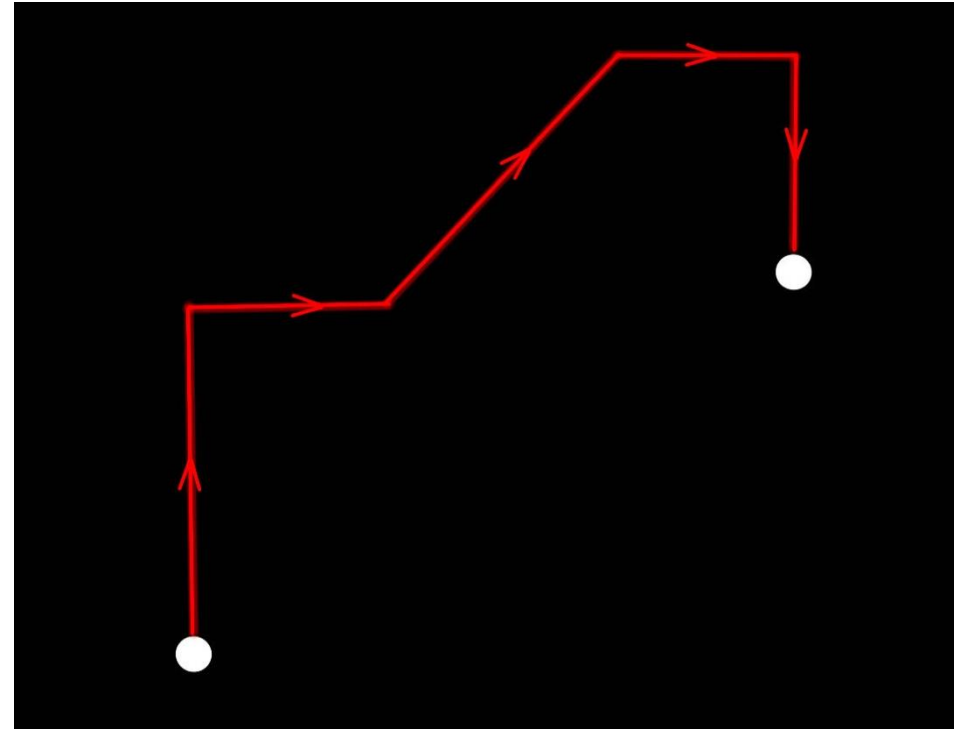
In the Mars Base...

- Huge **labor** in transporting
- Hard to **redirect motion**
- **Obstacles** in predetermined routes
- Certain **emergencies** happen



Our Solution

- Utilize laser beams as signals
- Automatically follow the visible trace of lasers
- Detect obstacles and alert by beeping
- Be manually controlled by infrared remote control

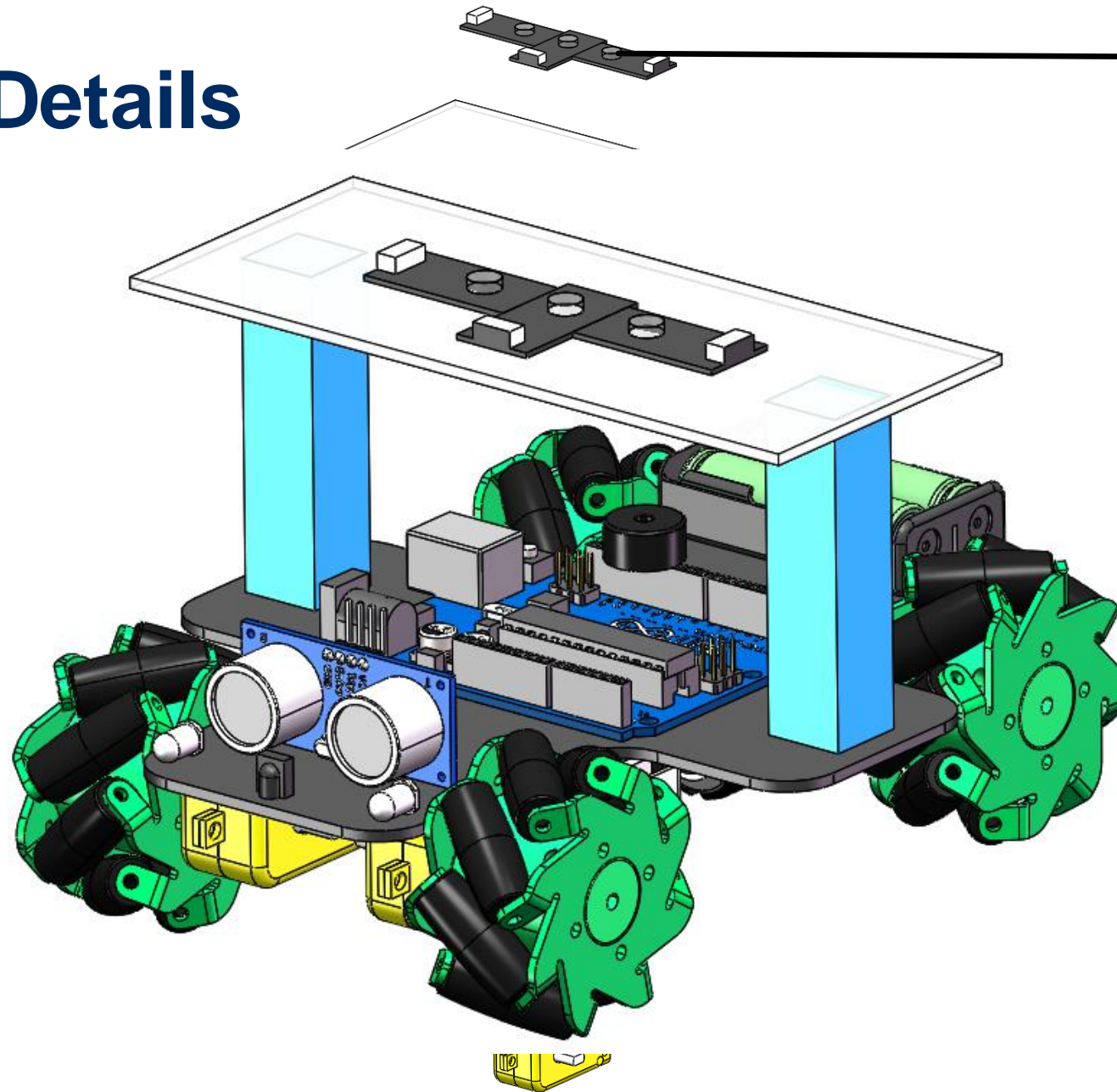


Structure Details

Pillars
IR Sensor

Led Lights
Ultrasonic
Sensor

Main Board



Light Sensor

Acrylic Board

Battery Holder

Buzzer

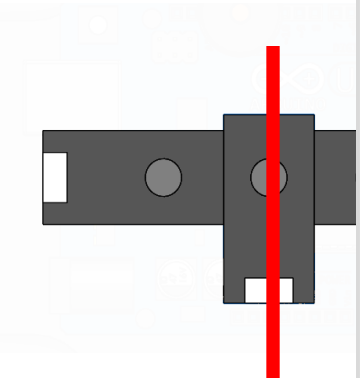
Mechanum
Wheel

Arduino Board
Motors

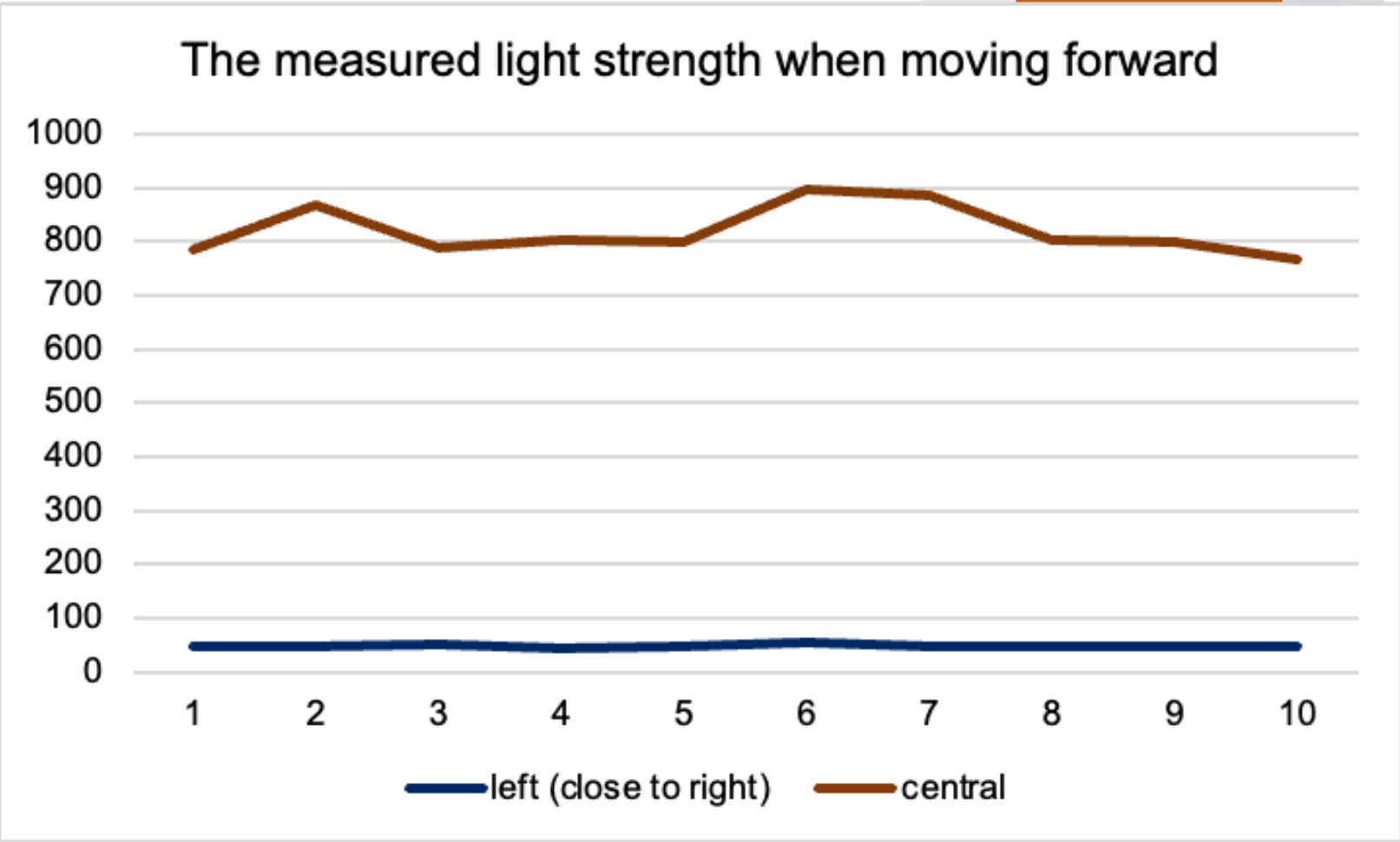
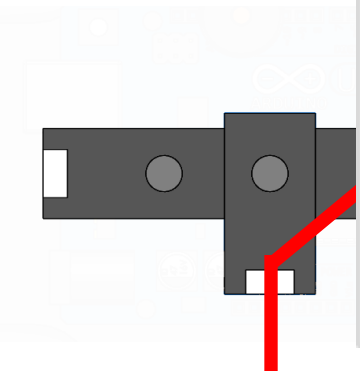
Demo Video



Function 1: Laser Tracing



Different Laser

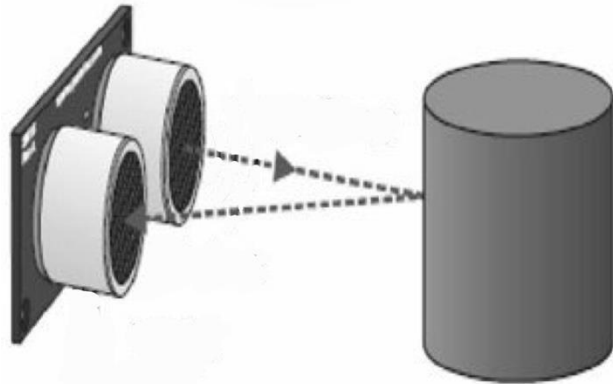


Light Sensors

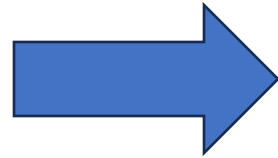


Motors:
the rover to go
or turn

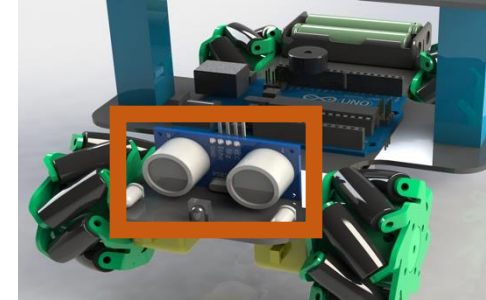
Function 2: Avoid Obstacles



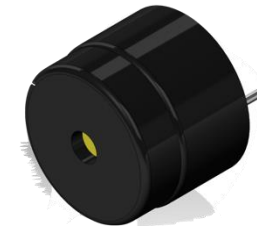
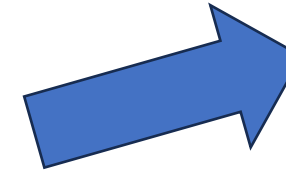
Ultrasonic Reflection



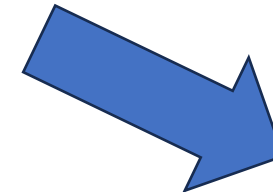
Arduino Board:
Receive and transform
the signals



Ultrasonic Sensor

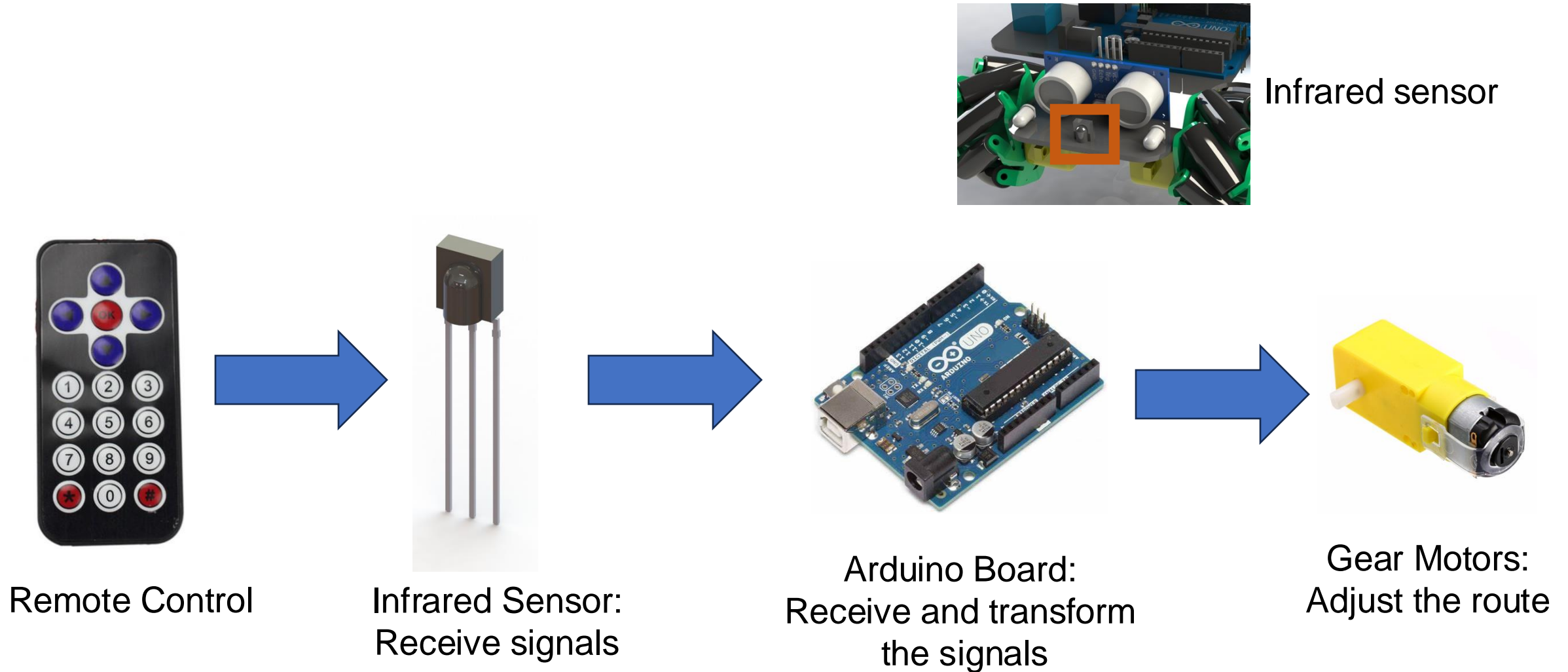


Buzzer: Alarming



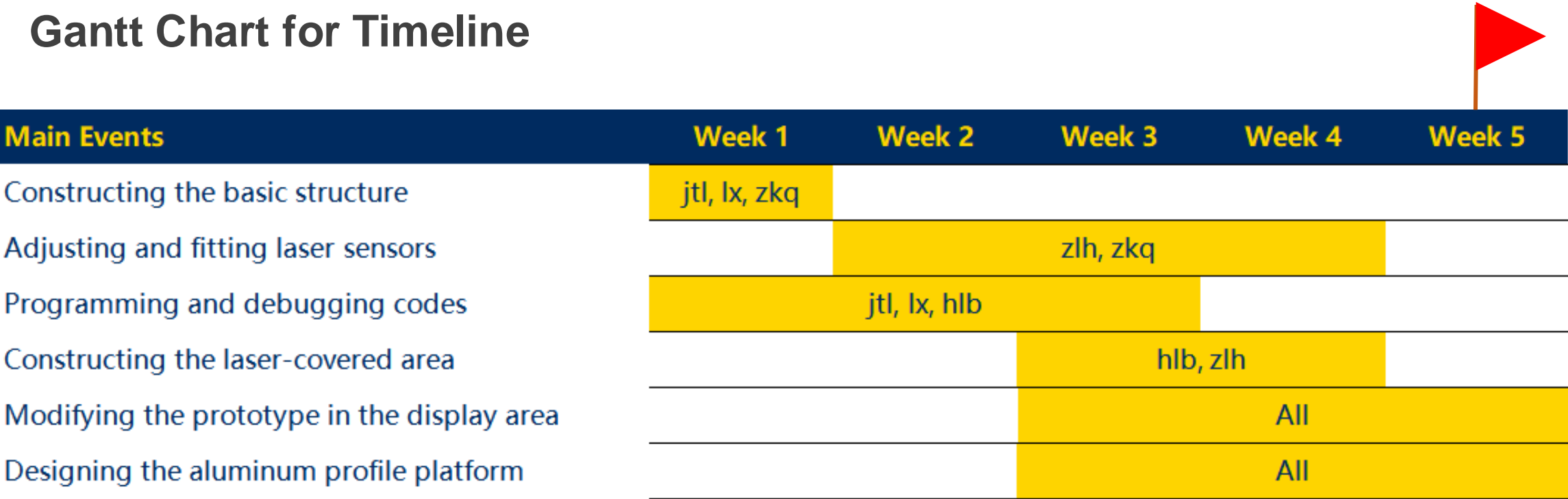
Motors: Stop

Function 3: Remote Control



Project Management

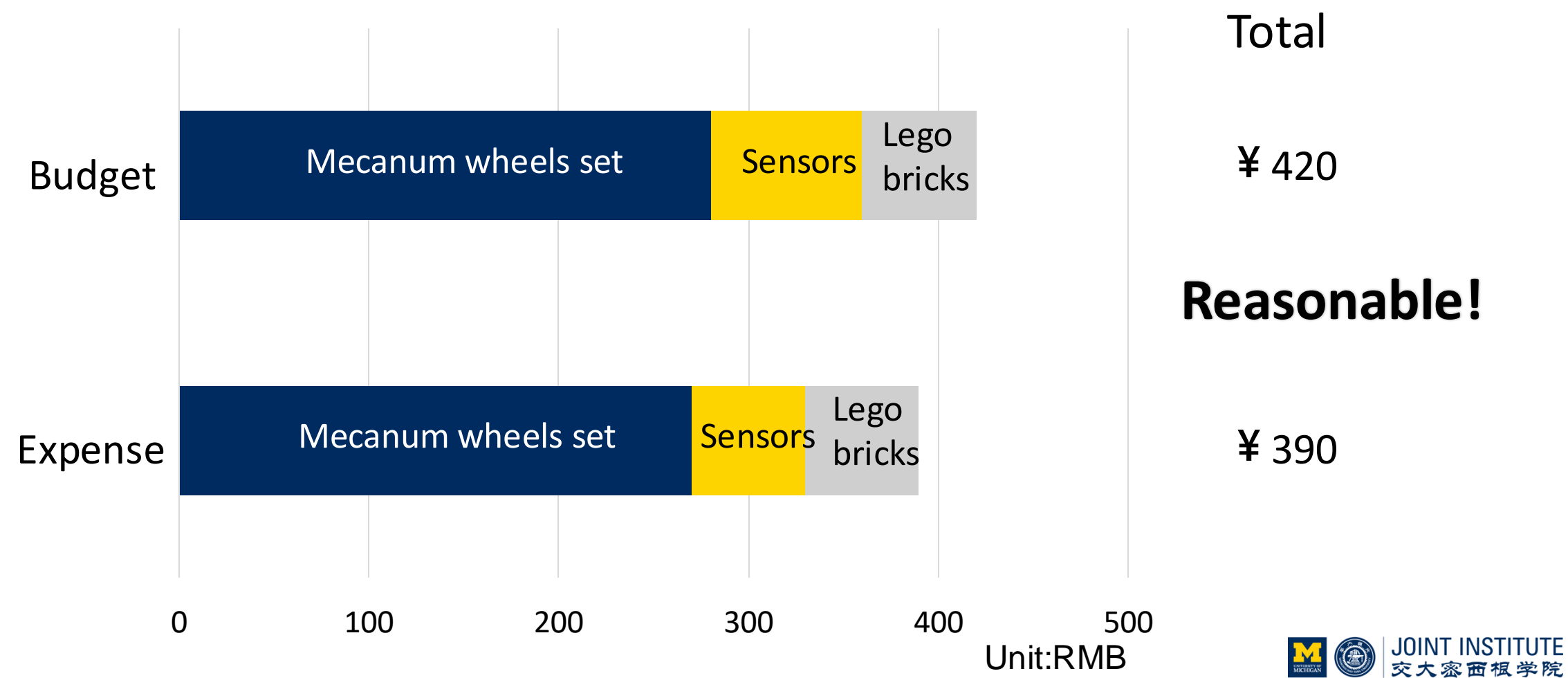
Gantt Chart for Timeline



Productive!

Project Management

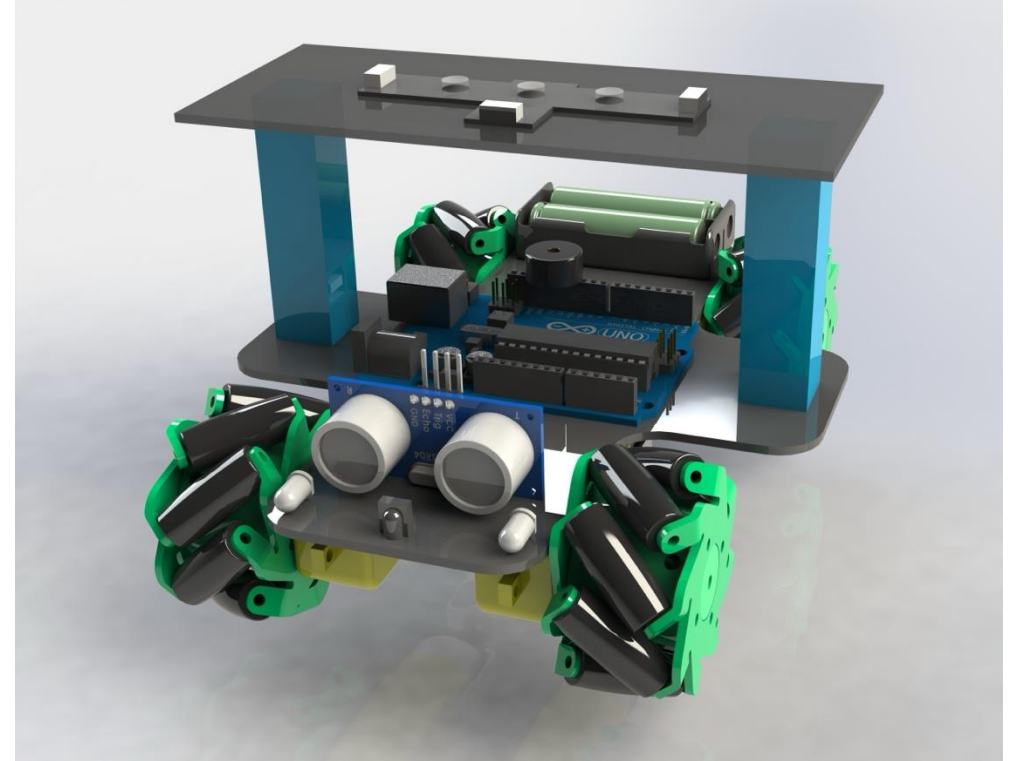
Budget VS Expense



Conclusion

- Achieve all goals
- Satisfy the basic needs
- Solve the problem on the Mars basis

Made it!



Further Direction

- Wider laser beam and larger light sensor for better detection.
- The rover can be larger to carry more things with higher efficiency.



[1] <http://www.etongfeng.com/item.php?id=520060526064>.



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Thank you for your attention !

Q&A

