BOE Sidewalk Assessment System

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City of Los Angeles Bureau of Engineering

College of Engineering, Computer Science, and Technology

California State University, Los Angeles

Background

The Project is a multi-year program to develop a rover to detect, measure, and record sidewalk data in Los Angeles.

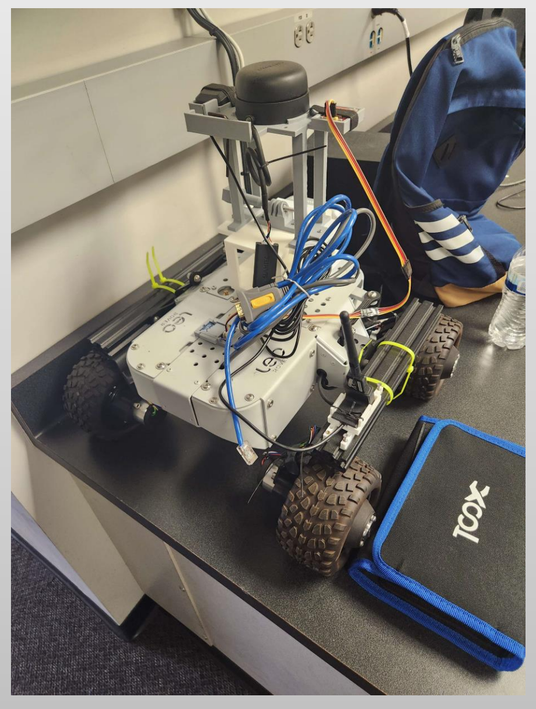
Objectives

- **Port the previous rover on the new platform.**
- **Design and Develop a method to collect vertical displacement.**
- **Calibrate and ensure modules are installed and measuring properly.**

System Requirements

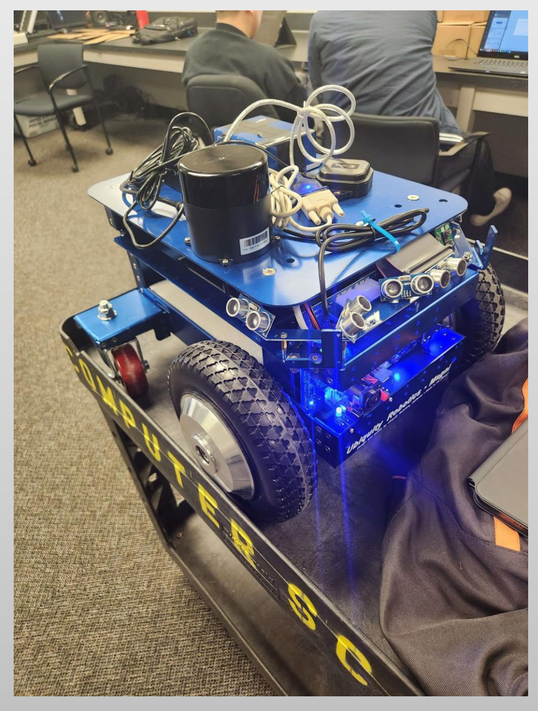
#	Requirement Name	Performance Objective	Capabilities
1.1	Verify calibration of slope measurement	Ensure accurate slope measurement	Slope measurement is accurate within standards
2.1	Port current program to new Ubiquity Rover platform	Port all functionalties to be used with new rover	Port was complete for rover usage
3.1	Develop a method to collect horizontal/vertical displacement	Detect changes in horizontal and displacements	Lidar bar detects and records small displacements
4.1	Develop software to display geographical data with UCLA Civil Engineering	Display geographical data using data from UCLA Civil Engeering	Data is correctly recieved and displayed

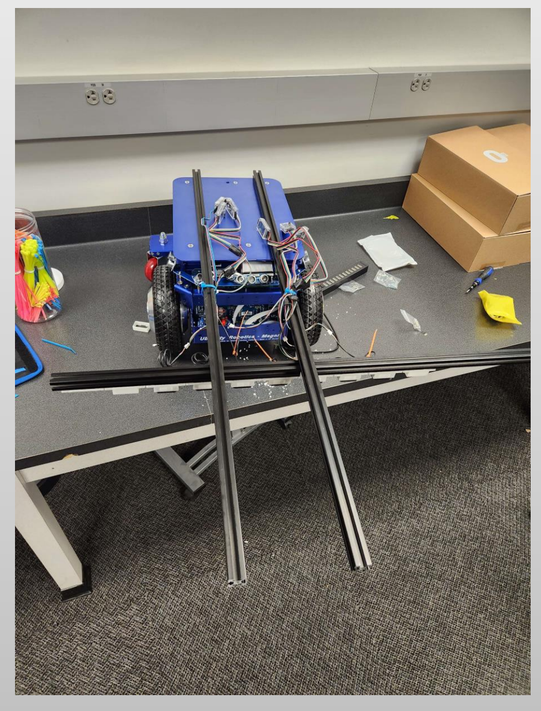
Previous Platform



Leo Rover

The New Platform

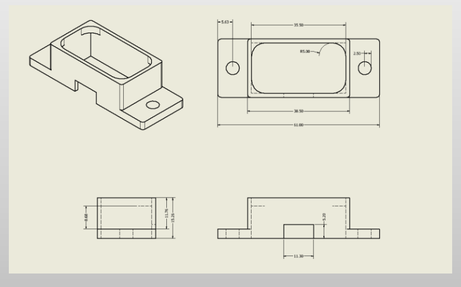


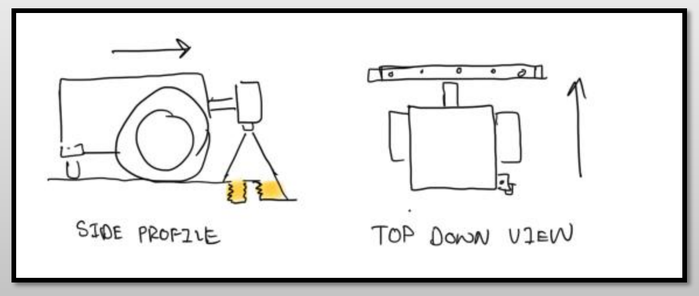


Ubiquity Rover and Rover with Lidar Bar Attached

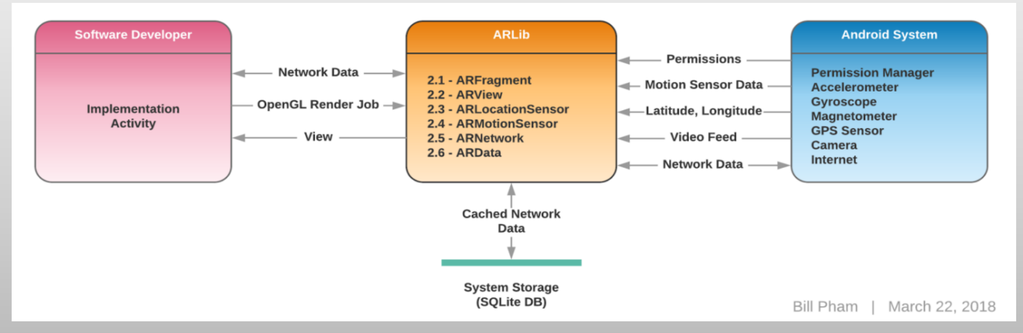
Design Approach

Lidar Bar Design





System Diagram



Technologies

React

ROS

Conclusion

Despite many delays being hinderances to development, the team successfully achieved every task, most importantly ported all the previous work of past semesters onto a new platform. The new rover will allow easier development and provide less design constraints for future semesters.