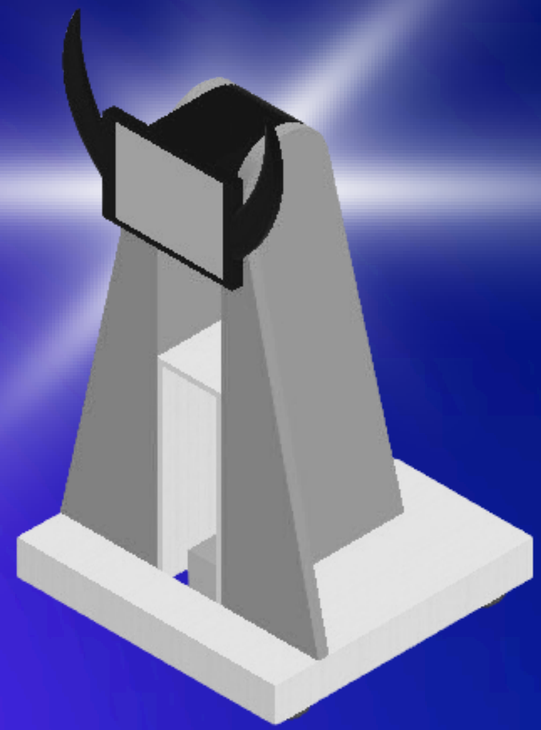
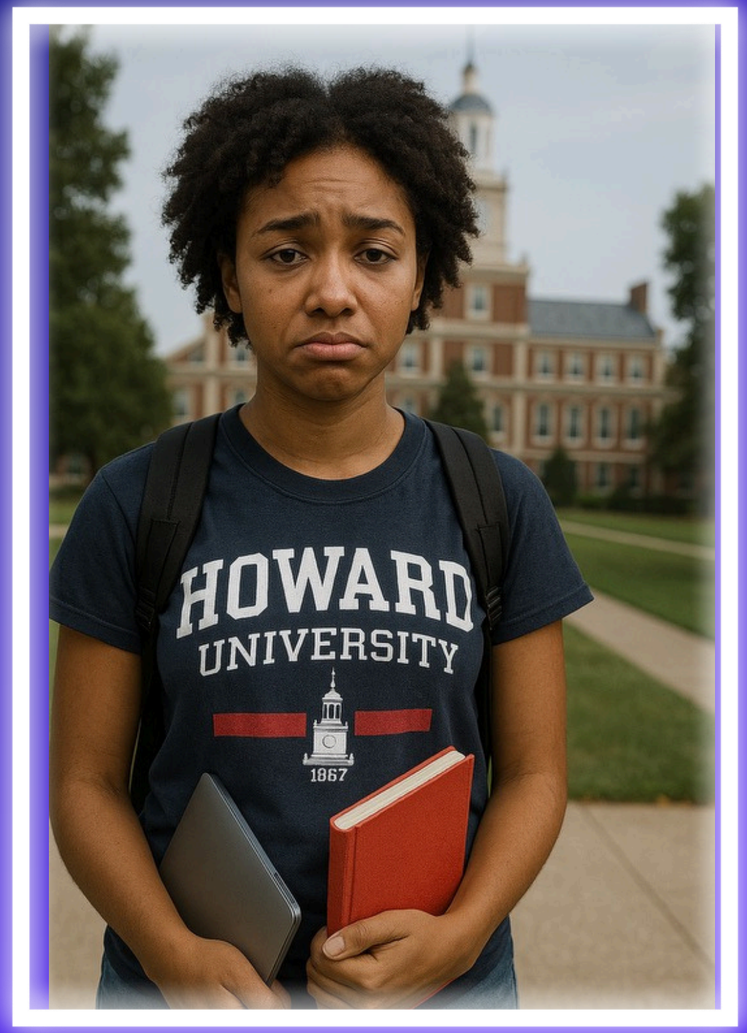
THE BISON BOT



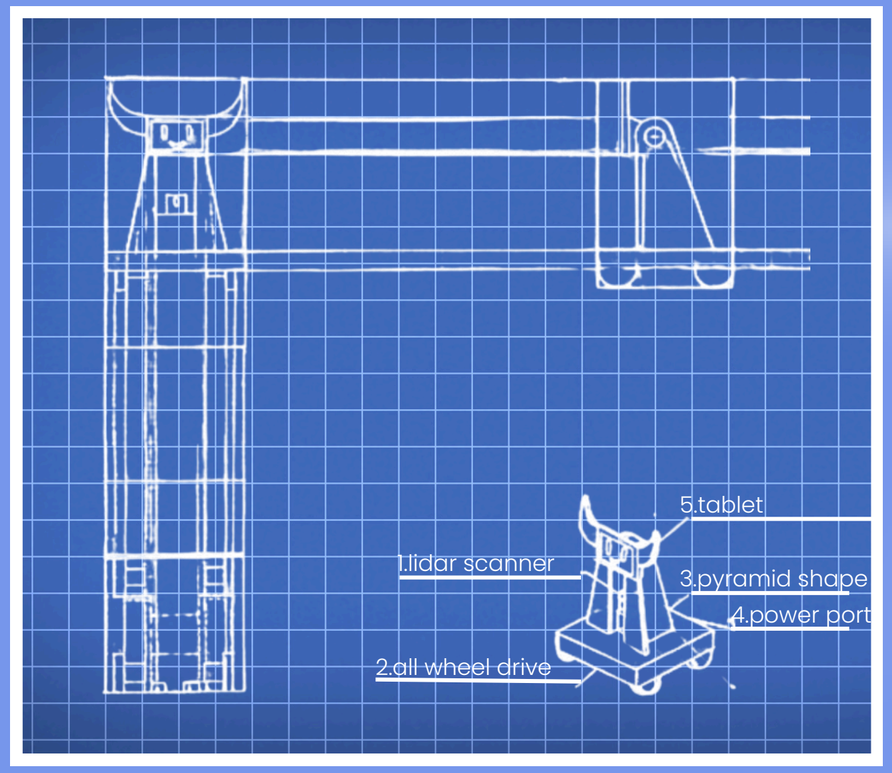
By Alexia Dixon, David Toler, Jorden Hill
Advisor: Dr. Keeling
Sponsor: Amazon & Boeing
With special thanks to: Stewart Workman
& Damien White

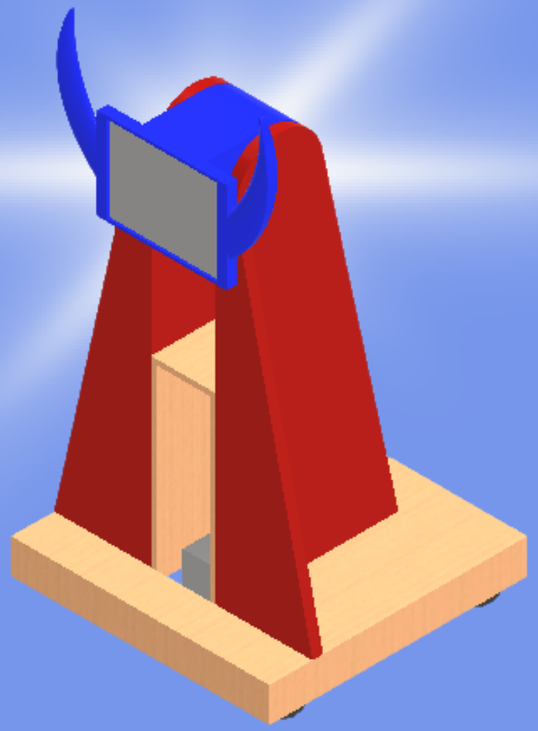
April 8,2025



A newcomer entering LKD might feel overwhelmed and disoriented due to the building's lack of clear signage and maps, making it difficult to locate classrooms and offices.

DESIGN SPECIFICATIONS





1.lidar scanner

2. manuverability

3. Stability

4. power management

5. user interface

DESIGN CONSTRAINTS

ENVIORNMENTAL

Excessive noise

Power constraint

SOCIO-CULTURAL

It's designed to be user-friendly, inclusive, and a reflection of Howard's welcoming and innovative spirit.

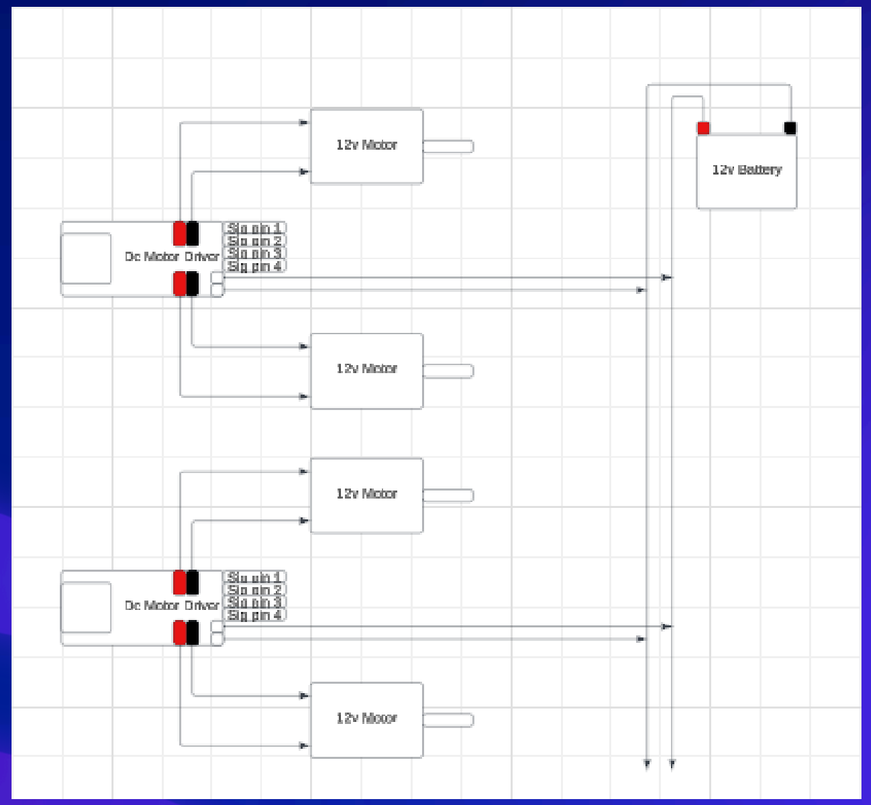
COMPLIANCE

The safety standard for robots (ANSI)/Robotic Industries Association (RIA) R15.06-2012.

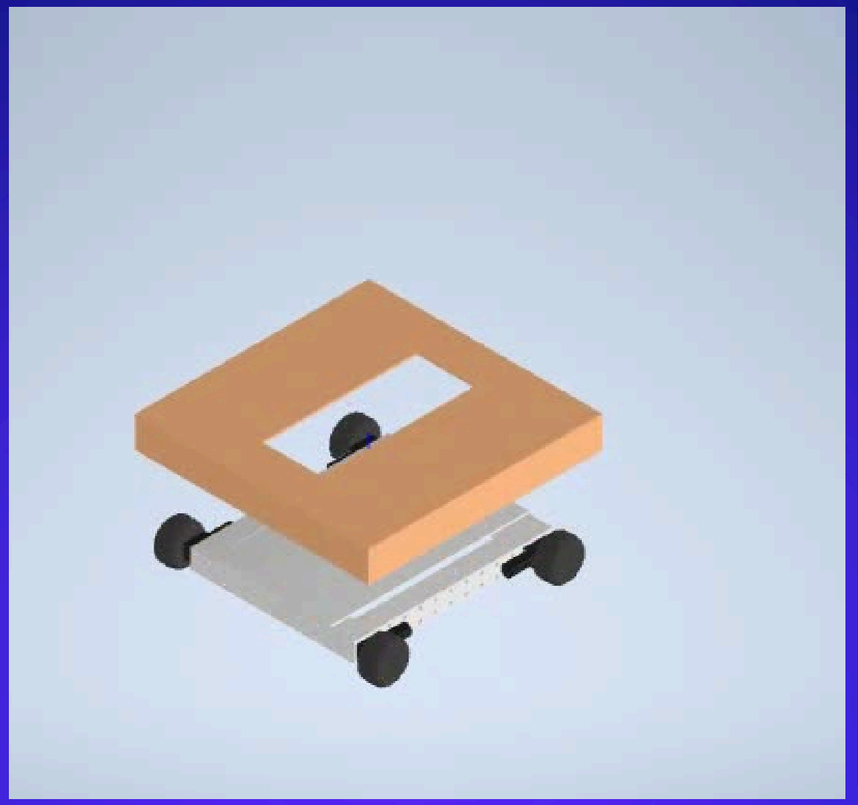
FCC compliant

COMPONENT LEVEL SCHEMATIC

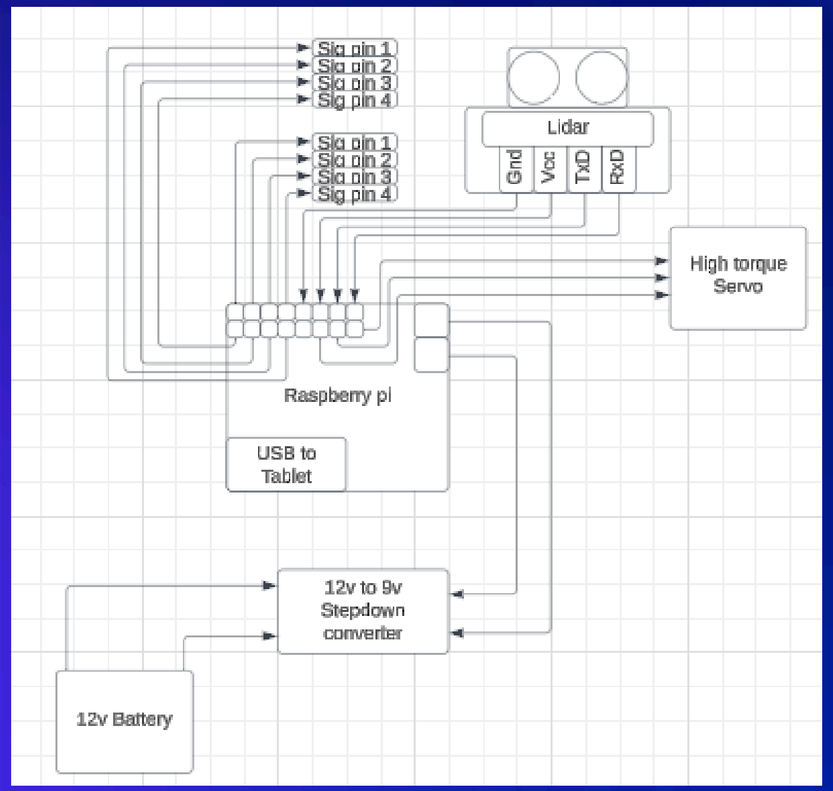
Drive Train Schematic



Drive Train Computer Model



Mapping and Logic Schematic



BISON BOT

SPRINT #1

Piece : Fabrication of a Digital Twin

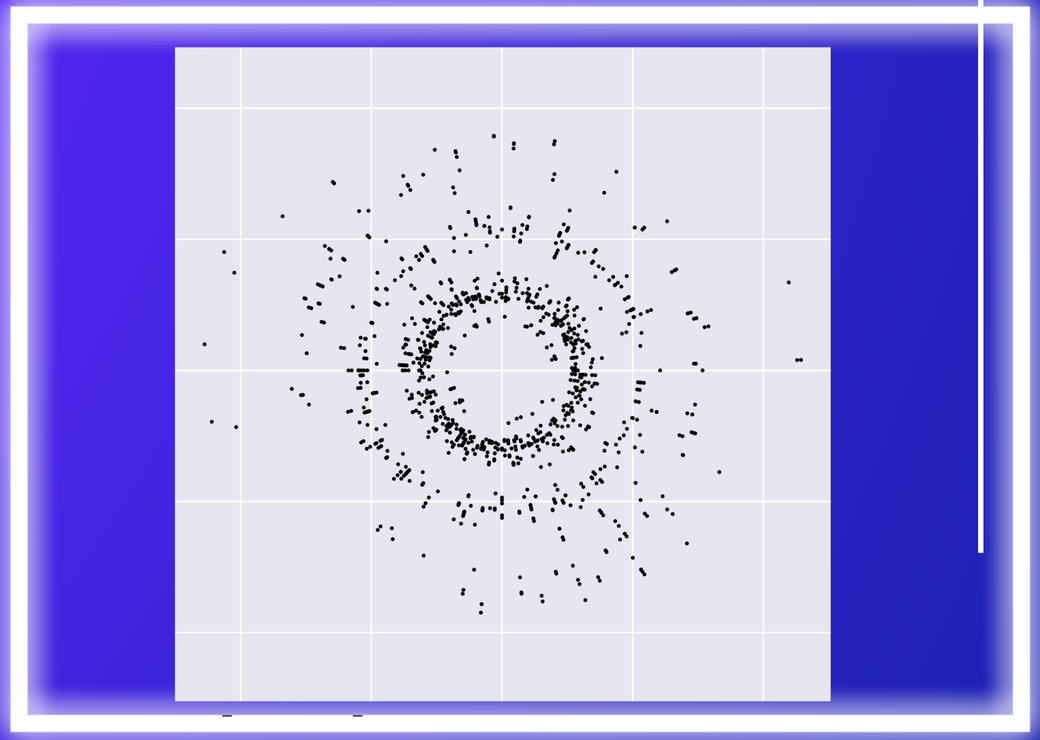
Weekly Tasks:

Week 1: Retrieve Gazebo laptop and map floor 1

Week 2: LT simulations and proof of component compatibility

Week 3: precise wood dimensions for frame cutouts

Scatter Plot of My room



BISON BOT

SPRINT #2

Piece : Bison Bot Assembly

Weekly Tasks:

Week 1: Drive train assembly and frame

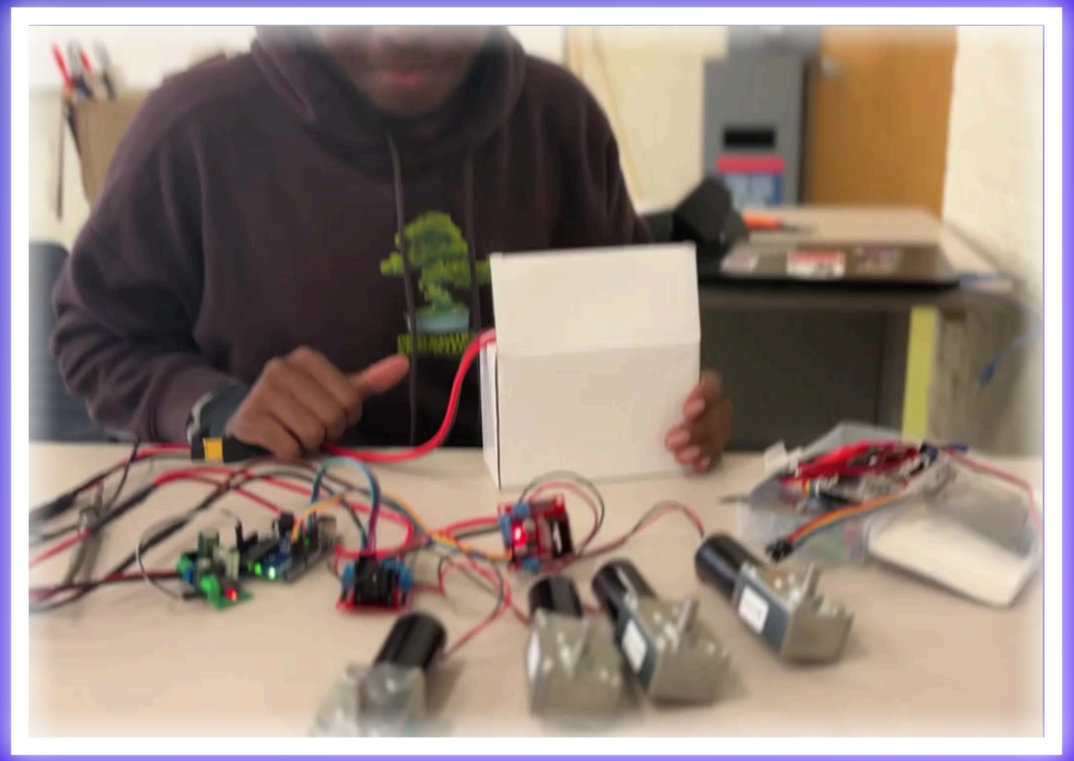
Week 2: Electronic attachment of lidar, converters, battery, etc

Week 3: hardware programming

Cutting of woodframe

SPRINT #2

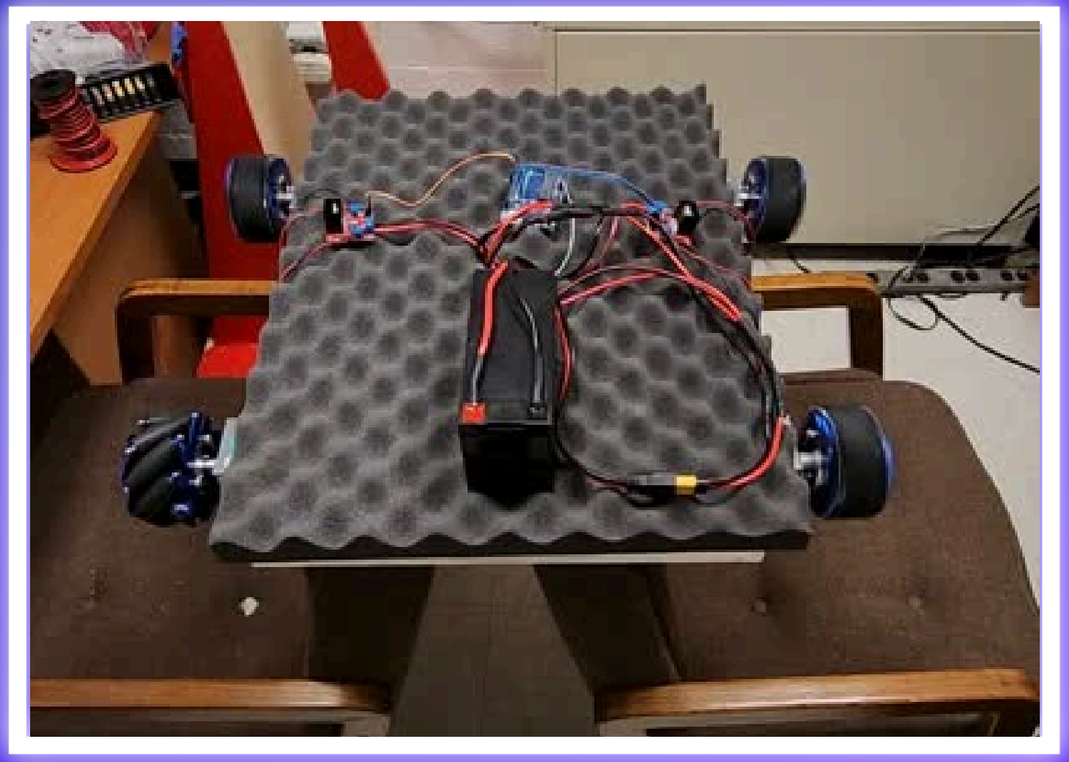
Demonstration of Drive Train



Wooden Frame Cutting

SPRINT #2

Drive Train



Full Frame Assembly

BISON BOT

SPRINT #3

Piece : Testing and Debugging

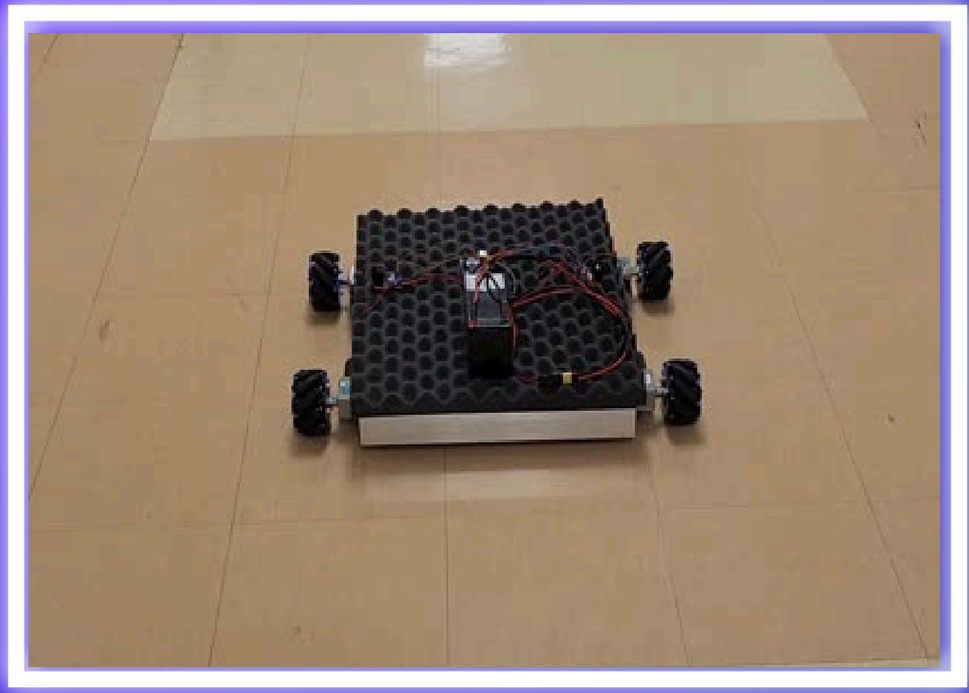
Weekly Tasks:

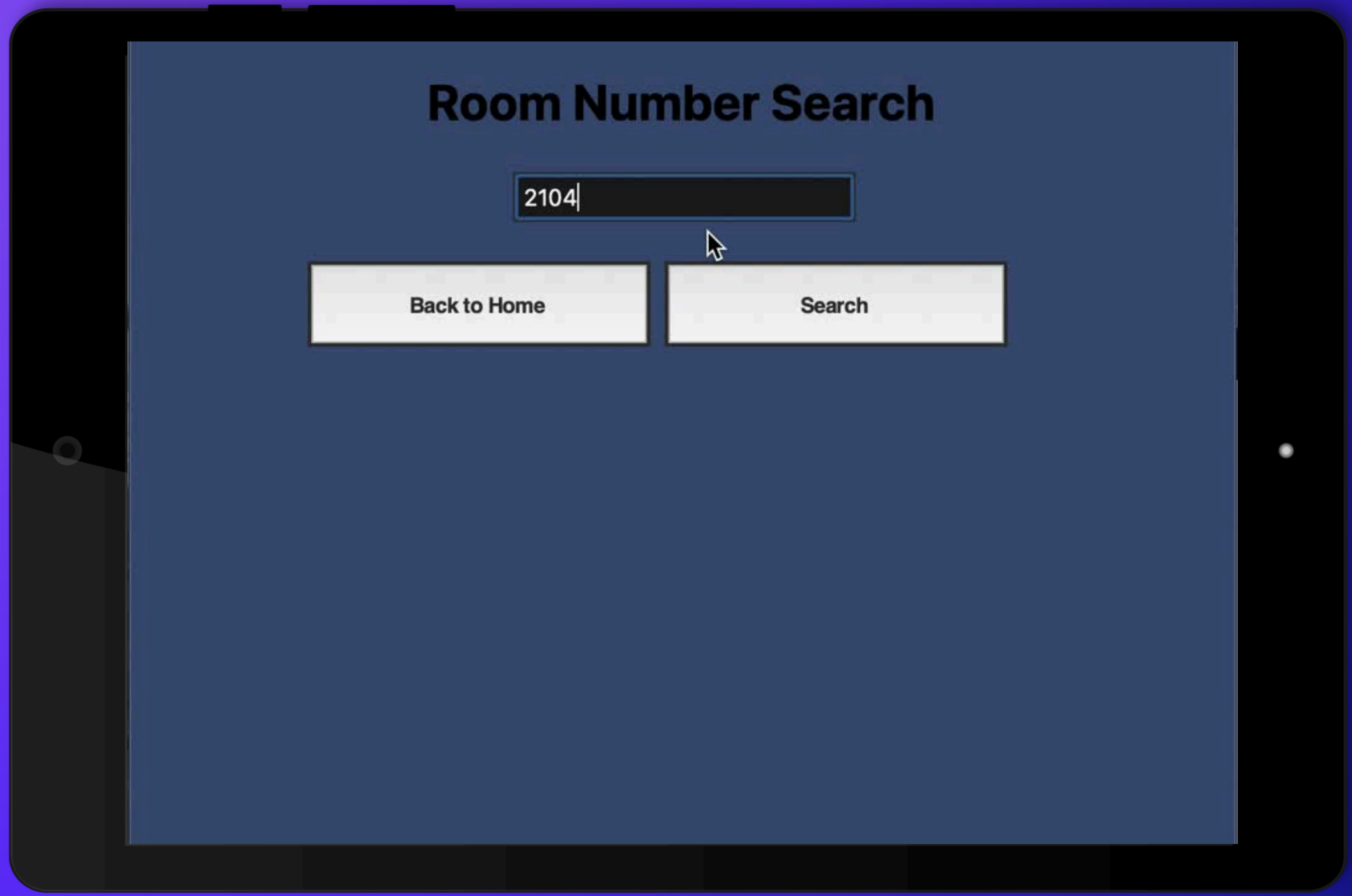
Week 1: Navigation testing and user interface programming

Week 2: Full Bison Bot testing and debugging

Week 3: Final presentation practice

Drive train demonstration

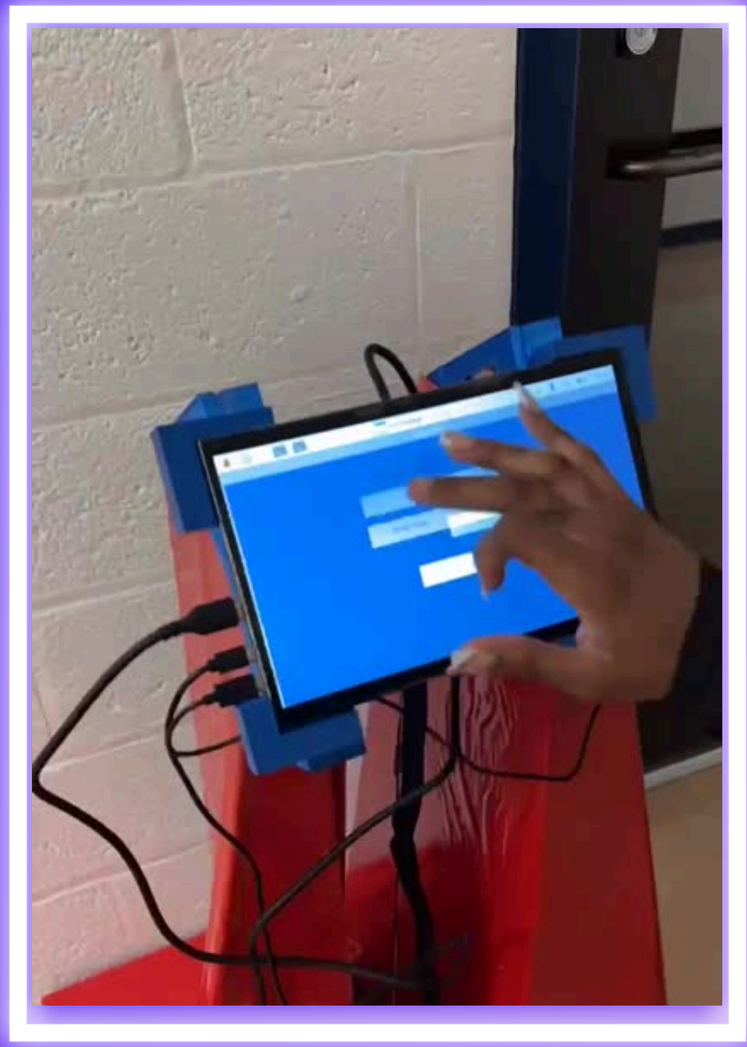



Room Number Search
2104
Back to Home
Search

SPRINT #3

Application of Vinyl

wooden frame attached to drivetrain



CONCLUSION

- Navigate to this second floor restroom and back
- Display output of lidar scan (scatter plot)
- Continuous interactive user interface
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