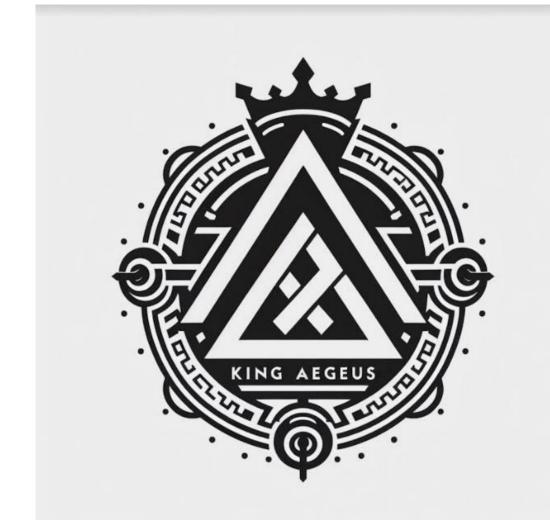


E1.07 – King Aegeus

Marquayvin Humble-Gaines, Alejendro Cornejo, Justin Dees, Alexander Hamilton Sponsor: Liam Quinn / Texas State University



Project Overview

Build an autonomous robot that will utilize wall detection and orientation sensors with a routing algorithm to solve a known maze without touching walls.

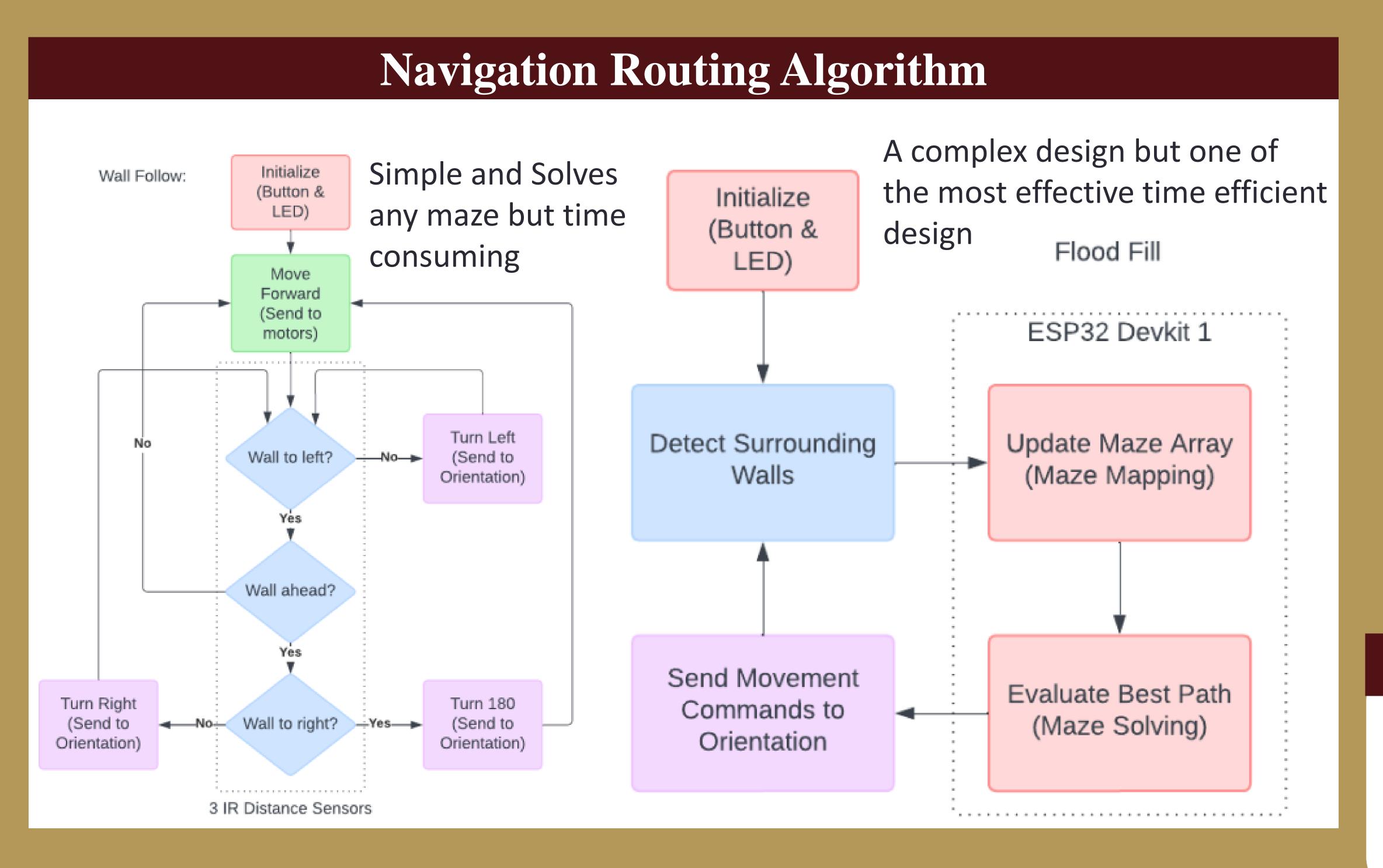
Design 1 Requirements

- Traverse a 3ft x 3ft x 0.5 ft maze with a travel space width of 6 inches
- The objective is to complete the maze and, using equipped sensors and routing algorithm, avoid collisions
- Design a Printed Circuit Board (PCB)
 Chassis schematic
- Functional subsystem integrated to complete a known maze within 3 minutes
- Maintain a \$40 budget, not including provided metal chassis

Design 2 Plan

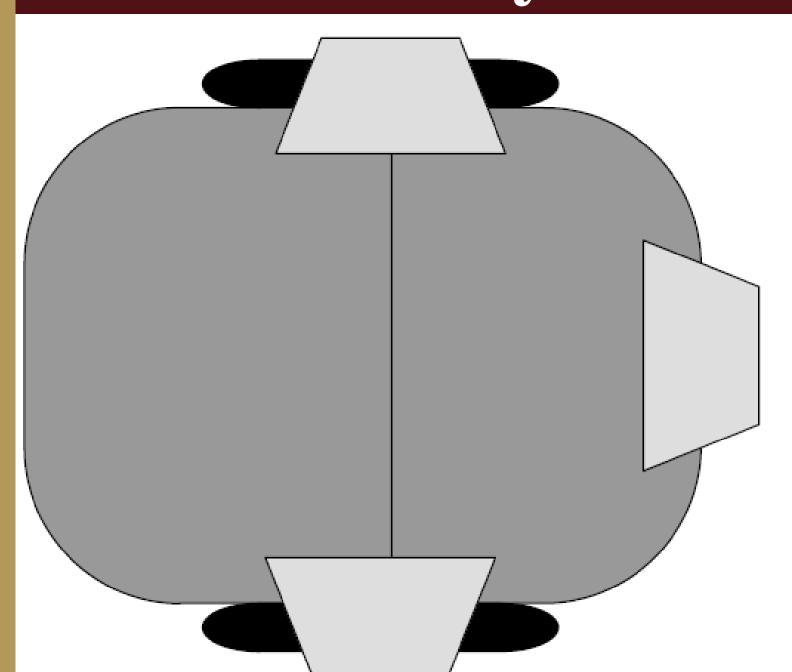
- Design a second bot and integrate both bots onto PCB Chassis
- Integrate a second routing algorithm
- Ability to solve a larger, unknown maze.
- Complete memory storage ability

Top Level Diagram Output DC-DC (2x) 18650 **Batteries** 2600mah +/- Left Motor Direction 3.3V Movemen Gyroscope Angular Sensing Left/Right Movement Velocity Left/Right Foam Core +/- Right Motor Distance (3x) Infared Direction Forward/Stop Right Detection Routing Flash Button/LED Push Startup _Maze Array_ **Button** Sequence Alexander Marquayvion Hamilton

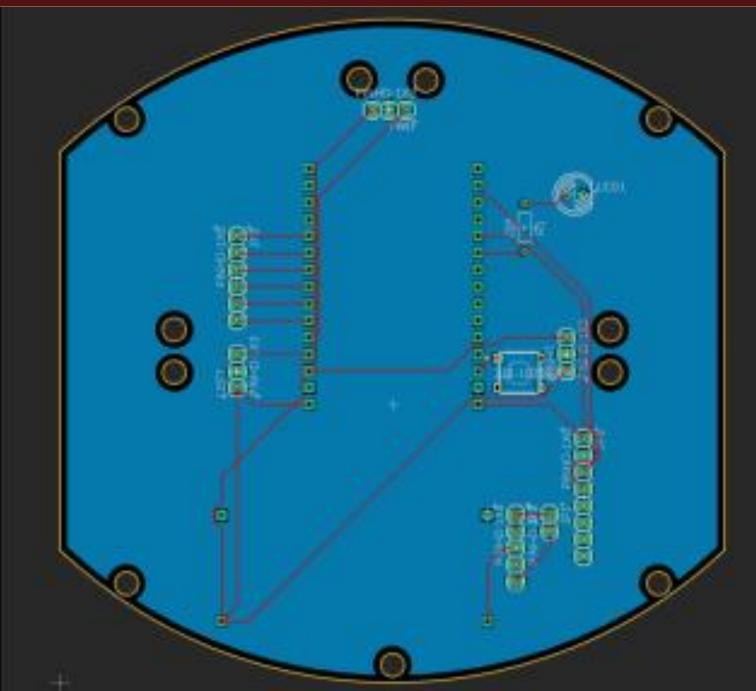


Team Justin -Navigation - Motor Control - Power - PCB Chassis - PCB Chassis - Team Marquayvin - Marquayvin - Orientation / - Wall Detection - Wall Detection - Wall Detection - Sensing

Sensor Layout



PCB Chassis Schematic



Acknowledgements

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D2 Mentor: E2.09 – The Eggquisitors