

Introduction

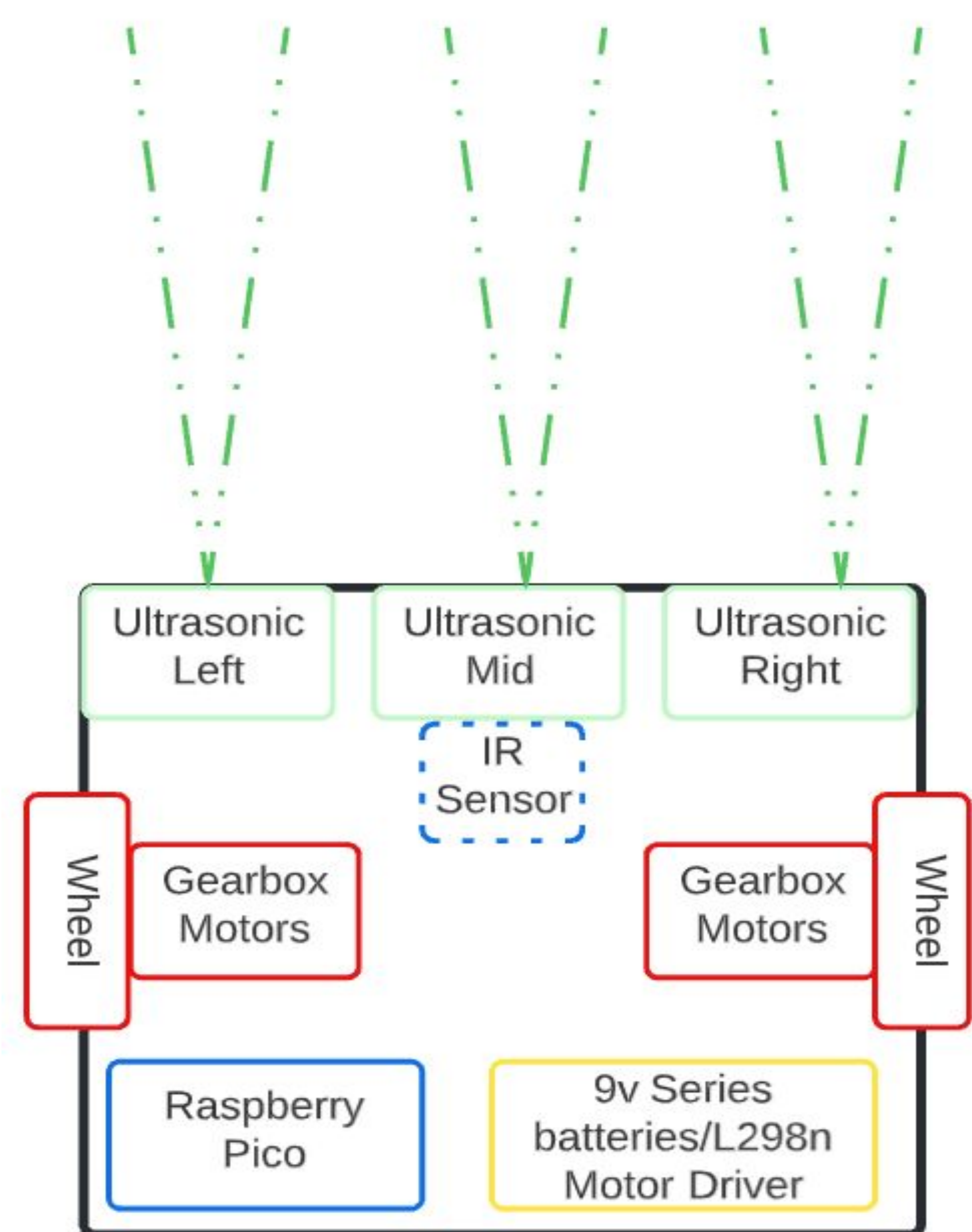
Bolt is an autonomous vehicle built from a standard robo-car kit designed and modified to compete through a series of challenges:

Challenges

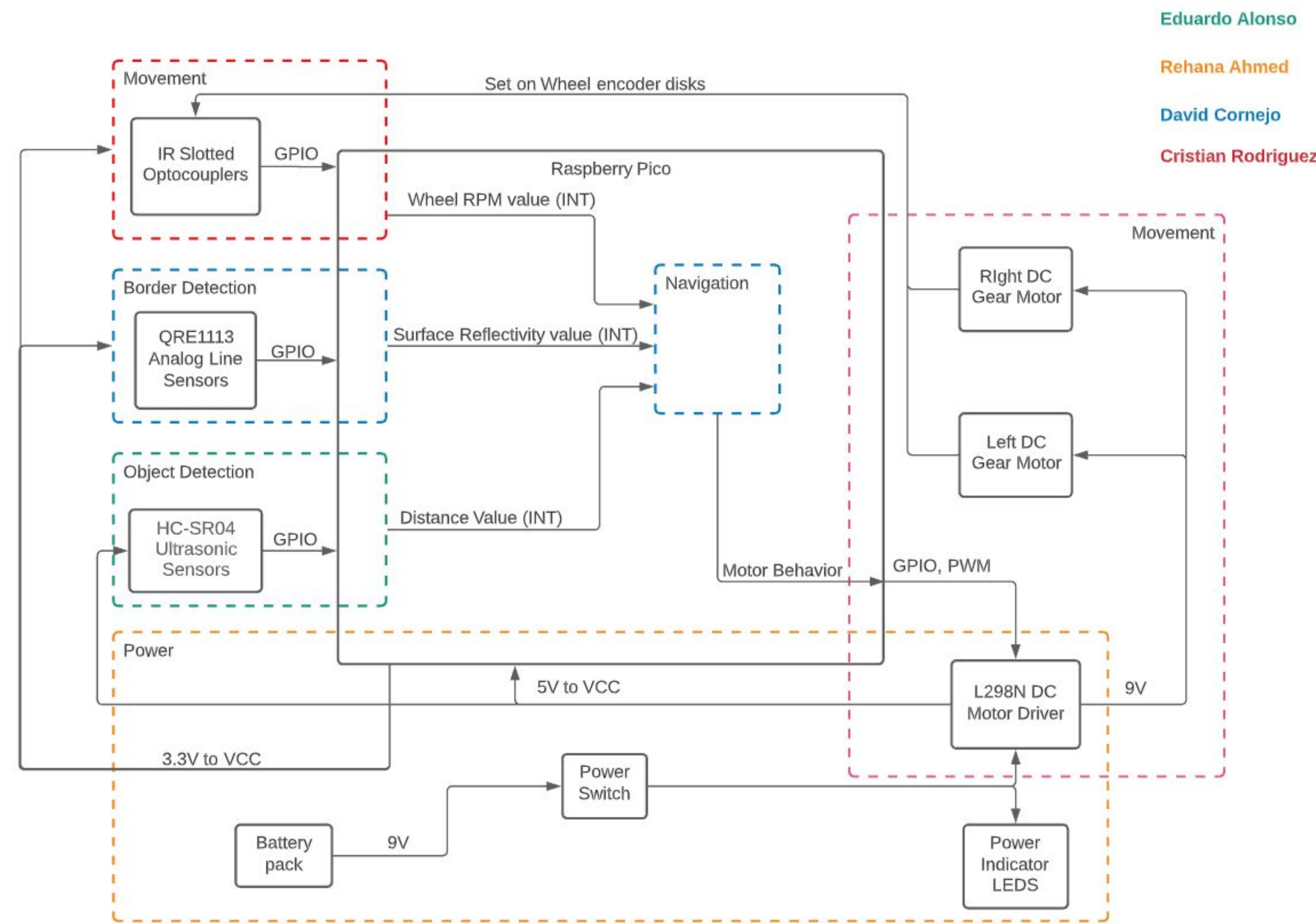
Hallway Traversal	Successfully traverse a hallway.
Block Push	Push a randomly placed block out of a 122 cm diameter ring with a white border.
Sumo-Bot Tournament	Round Robin Tournament with standard Unified Sumo Robot rules.

Features

- 500 cm Object detection range
- Interrupt enabled surface reflectivity detection
- 200 RPM dual wheel drive
- Dual core enabled navigation system
- Over 5 hours of battery life



System Block Diagram



Team Members

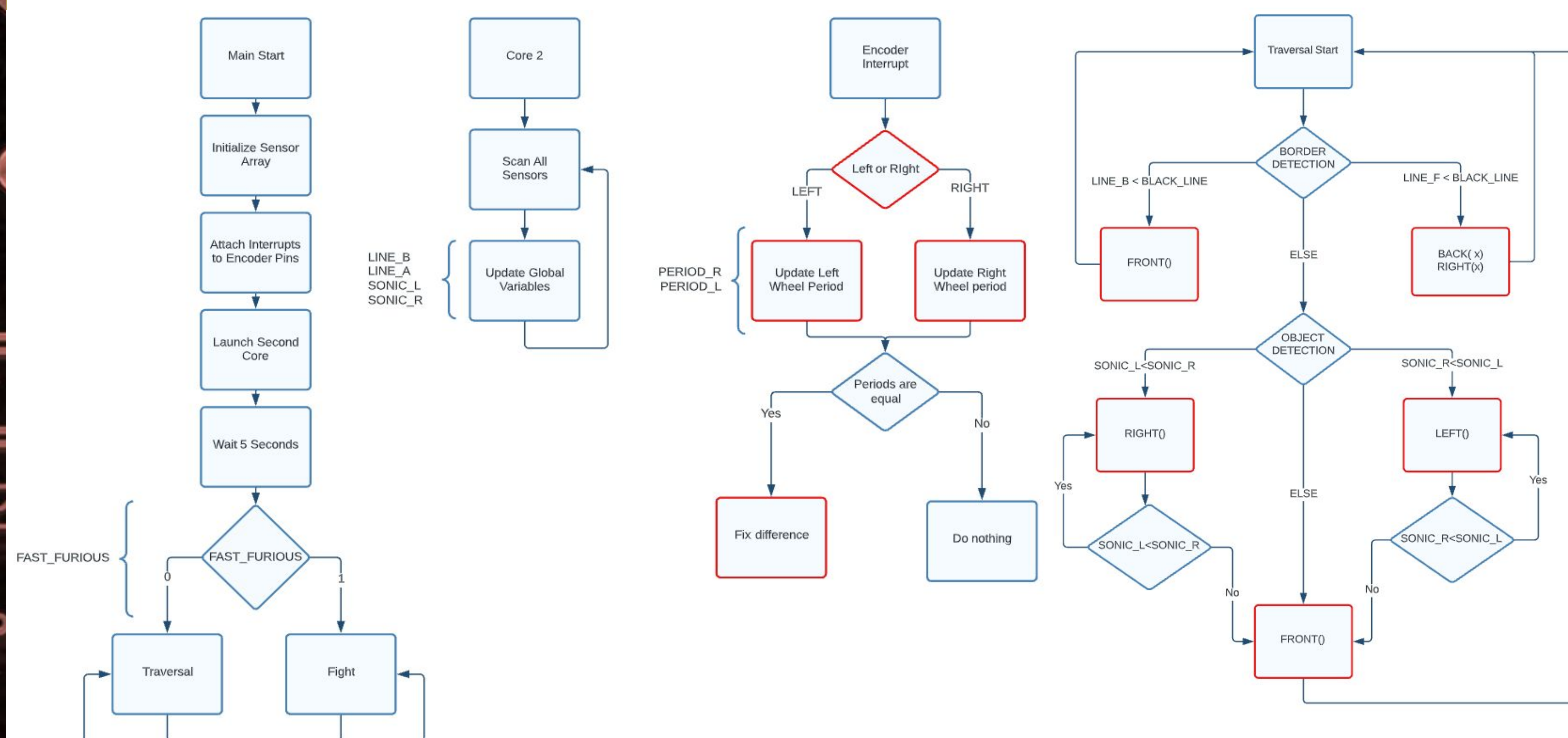


Rehana Ahmed, David Cornejo, Cristian Rodriguez, Eduardo Alonso

Restrictions & Constraints

- \$50 Max Unit Budget (excluding kit Cost)
- Cannot use cameras
- Max Width: 18.0 cm
- Max Length: 24.0 cm
- Max Weight: 1200 g
- Must remain stationary for 5 seconds after activation
- At least 4 hours of battery life
- Standard Sumo Bot Safety Restrictions

Logic Overview



Components

Component	Qty.	Subtotal Cost
Raspberry Pico	1	\$08.50
Ultrasonic Sensor	2	\$01.60
Analog Line Sensor	2	\$02.50
Teyleten Optocoupler	2	\$01.00
Resistors, Capacitors, Inductors & Cable Kit	1	\$06.50
Total Cost		\$20.10
Base Kit Cost		\$50
Testing Costs		\$45

Acknowledgments

- Sponsor: Mr. Jeffrey Stevens
- Faculty Advisor: Dr. Stapleton
- Instructors: Dr. Hinkle and Dr. Welker