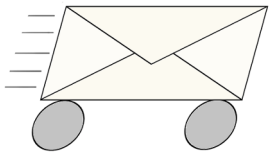

# I.G.O.R.

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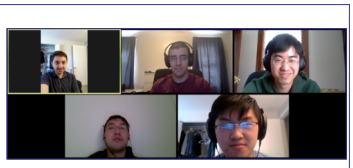
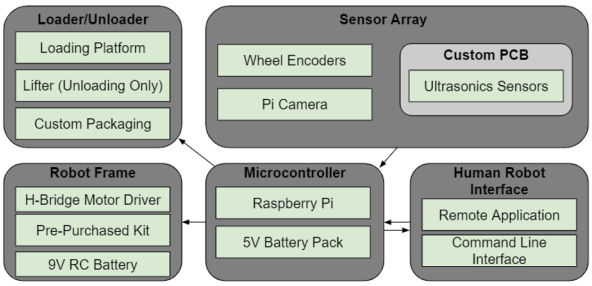


## Abstract

Package delivery in an office setting is a necessary task in many buildings, but it can be time consuming, and therefore expensive, for a human to perform. I.G.O.R. is a robot that can help to improve the productivity of office workers by partially automating the task of delivering packages. I.G.O.R. can navigate to a pickup location, have a package manually loaded onto it by the user, and then can drop off that package at a drop-off point autonomously.

## System Block Diagram

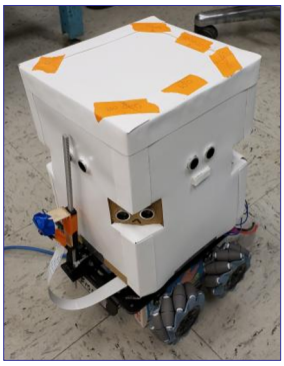



## Specifications

| Requirement | Specification | Value |
|---|---|---|
| Receive source and destination | Command-line interface | Display a map that the user can use to select a package source and destination |
| Path plan route to goal | Time | < 2 sec |
| Carry a package to destination | Speed | 0.5 mph |
| Autonomous package unloading | Distance from selected destination | 3 feet |
| Battery Life | Time | 3+ deliveries in Marcus basement |
| Collision avoidance | Responsiveness | < 180 ms |
| Portability | Size / weight | < 4cu.ft. / < 20 lbs |

## System Overview

I.G.O.R. serves as an autonomous robot that delivers objects inside buildings. After uploading a map of the current floor plan, users can drop-pff objects via I.G.O.R. to a drop off location by first loading the package onto the robot and then specifying the robot's current position relative to the floor plan.



## Results

I.G.O.R. is able to navigate from specified starting and ending destinations via odometry feedback with some error in its integrated position after moving. While we were able to update the position of our robot with visual cues, we were unable to incorporate this information with our navigation; this information would ideally provide a means for global localization for I.G.O.R.'s position.

I.G.O.R. was able to react to unexpected obstacles in its path by stopping completely, but was unable to revise it's global path to traverse around unexpected obstacles. The remainder of our time would have been focused on incorporating the visual cues (global localization) with our robot's navigation.

## Acknowledgement

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