

Swarm Collision Avoidance

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Introduction

Collision avoidance is a popular option for motorized vehicles. A system in place would decrease the probability of human error in collisions and provide a safer flow of transportation. As technology exceeds human expectations, autonomous vehicles will soon emerge and become readily available to the masses. An avoidance system onboard autonomous vehicles that detects when another object is nearby can decrease the overall number of collisions. In the real world, autonomous vehicles will act as a swarm, and if they detect an oncoming object, they will turn in a specified direction, or halt, until the object is no longer obstructing.



Progress:

We have created code for basic movement such as moving left, right and forward. We also added checks and protections to ensure that have a controlled speed for the robot. Finally, we added efficiency changes by reducing the variable sizes. All of this fits to 5% of the total ram allocated for the robot, making room for possible functionality additions. We also have all the parts working but it needs to be soldered. We are now focusing on testing the photo transistor and motor.



Objective & Goal

The main objective of our project is to build a network of robots with a collision avoidance system. These robots should be able to navigated pass obstacles or colliding objects. By the end of the quarter, each robot will have ultrasonic sensors for object detection to identify obstacle on its way in order to come up with the best avoidance strategy.

Contact Information

Timeline Week 1-3: Planning Week 4-5: Ordering Week 6-8: Assembling Week 9-10: Testing

Module	Hardware	Software
Soldering	Tuan & Eric	
Enclosure	Tuan	
Motors		Jacky
Sensor		Nick & Jacky

