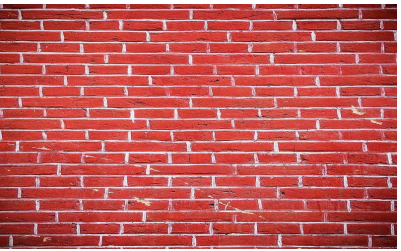
Calvin

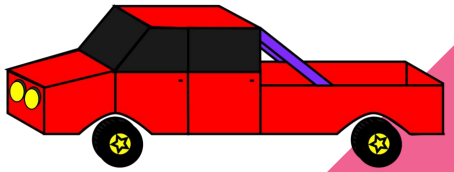
2.3.1 PRESENTATION

By: Aedan C, Calvin K, Arnesh M, Tyler N

Problem

Delivery systems fail to work as well in unexplored areas which slows down the delivery process. In addition, there are many stops/obstacles that will affect the delivery. Overall, this takes away too much time just for one delivery and would be faster if the obstacles can be properly identified and avoided. This will speed up the delivery process and result in a more efficient delivery system that can deliver anywhere.





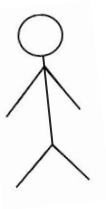
Goal of Program

The goal of this program is to obtain the three different supplies around the area, while avoiding the obstacles alongside the area. Then returning back to deliver the supplies back to its starting location. It should be able to detect where to obtain the supplies and how to avoid the obstacles along the way, and when getting supplies, makes a custom sound to indicate it.

Calvin Kwok

Plan: Delivery Robot

1) Robot is able to move via motors
2) Contains buttons to make random noises
3) Move to red cone first to ‘obtain supplies’
4) Go to second delivery of blue supplies (blue cone)
5) Final destination is green house for green supplies (greencone)
6) Return back to start with all 3 supplies delivered



Roles

1) Tyler N: Main Programmer
2) Aedan C: Programmer #2, Information Dude
3) Arnesh M: Primary Tester, Slideshow Editor
4) Calvin K: Secondary Tester, Idea Person, Slideshow Editor

Aedan Chen

Codes Role

2D List: Identifies the environment of the SDV Robots (Scrapped)

Music and Brain: Identifies that the supplies are being picked up

Snapshot: Identifies the color, and will execute a certain code if certain color

Broadcast: Runs a certain command with many blocks

Wait Blocks: Sets a period of time where the code waits till executing the next action

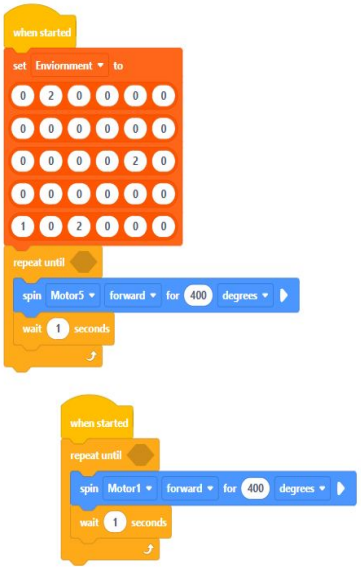
Exist: Identifies if the color present is there or not

Motors: Moves the SDV Robot in a certain direction

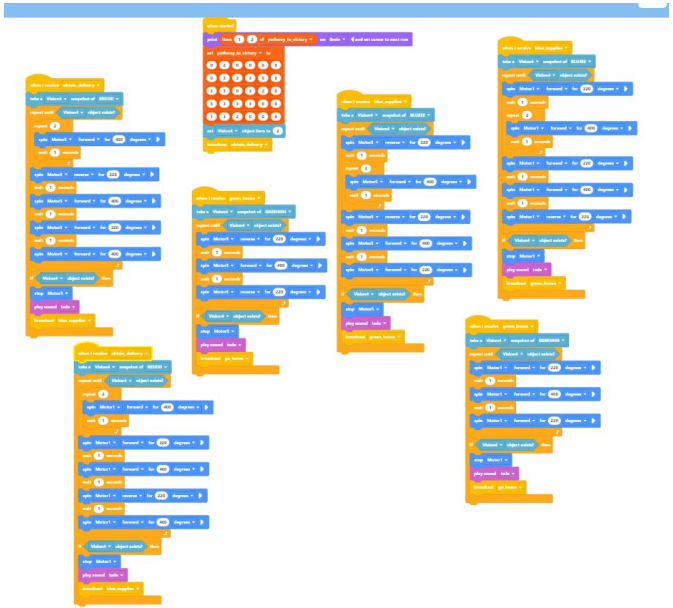
Print Brain: Text indicating SDV actions

Screenshots

Day 1



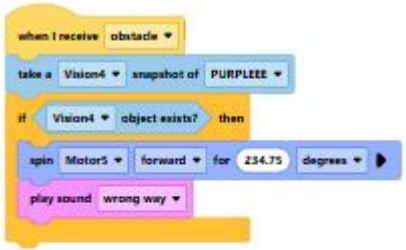
Day 2

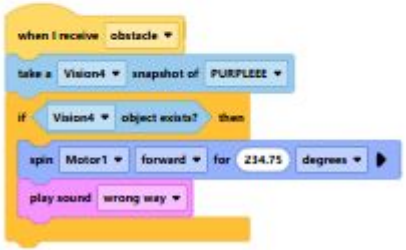


Day 3

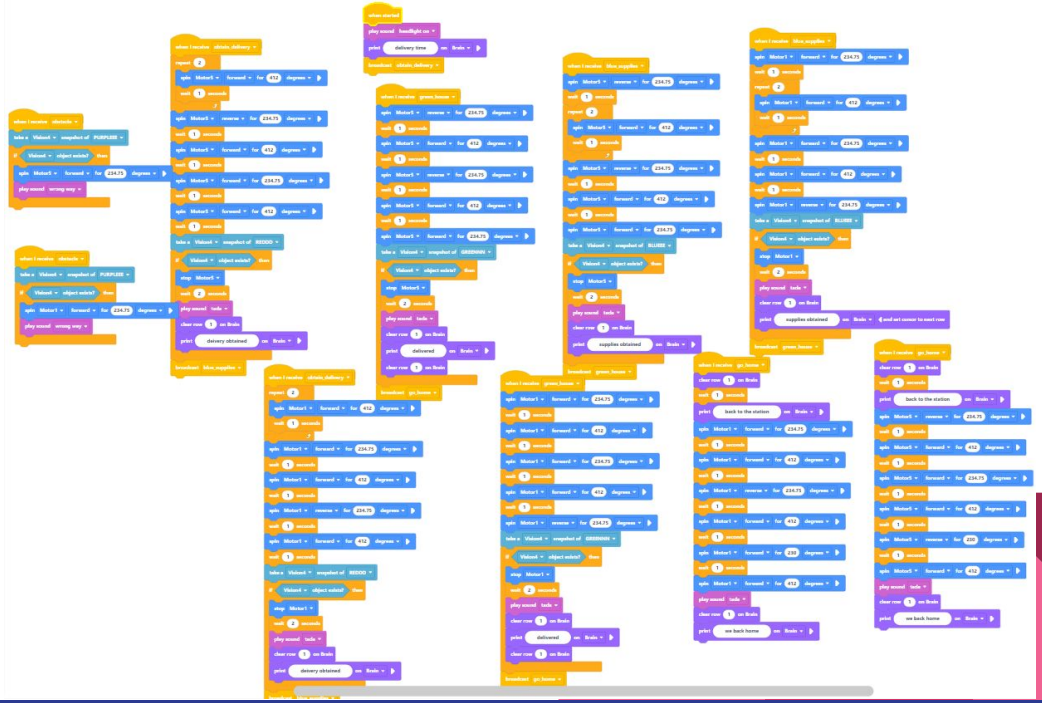
Screenshots

Day 4





Day 5



Aedan Chen

Objects Used

Spawnpoint: Where the SDV robot will first start and end

Red Cone: The first stop of three cones for getting supplies

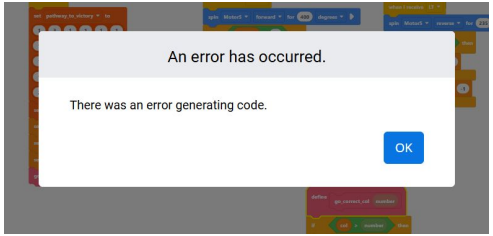
Blue Cone: The second stop of three cones for getting supplies

Green Cone: The third stop of three cones for getting supplies

Purple Blocks: Roadway of the path towards the three locations

Calvin

Challenges



1) Hard time utilizing different methods of transportation
2) Brainstorming took a lot of time
3) Problems with trying to identify obstacles
4) SDV Robot had difficulty detecting colors
5) Too spread out, took some time in order to solve problems
6) We tried to create a different program to try to solve the problem without using dead reckoning, but we experienced errors with transferring code onto the SDV for that specific program. We could not get the code on the SDV no matter what we tried, and we concluded that the code file was corrupt.

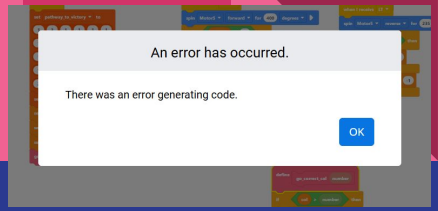
Representation

It represents how jobs that include delivery men and truck drivers have to navigate between obstacles like running out of gas and traffic in order to obtain and deliver supplies in various locations. Both the SDV and the jobs had to do multiple parts like navigation, delivery, returning and avoiding obstacles. Finally, both have to go through unexplored areas to complete their job.

Reflection: Tyler and Aedan

Tyler: After joining the group late, this entire project went well but due to the faulty sensor we had made it less enjoyable. However the motion part of the project worked perfectly fine except towards the end where the SVD hits the railing and eventually not making it back the way I wanted it to. The obstacles of the project was hard to avoid due to how I was starting the SVD out which was also hard to maintain during the project.

Aedan: Tyler's idea involved using dead reckoning, and I thought I could create a program that didn't rely on dead reckoning, but there was an error in 'generating the code', so I was never able to get the code onto the SDV and test it out. Overall this project was fun because of the collaboration, but errors in VEX equipment(the vision sensors and errors in the website) made it less enjoyable.



Reflection: The GOA Arnesh and Useless Chess-addicted Calvin Kwok

Arnesh: This project went well however there were challenges throughout the course of this project which were difficult to overcome and took a lot of time away from the project. There were also other factors that slowed down the project, one of which was that the sensor wasn't working properly.

Useless Chess-addicted Calvin Kwok: The project was very unique and fun to do throughout the days. I helped create ideas for the project during the timeframe, such as how it works and majorities of the slides, which went well for me. Although there were problems like the turn degrees not working how we wanted to, we did achieve our goal thanks to Tyler.

Resources

1) Github Link: https://github.com/ChillRave/2.3.1-Presentation
2) PLTW Link: https://pltw.read.inkling.com/a/b/71ce293152cf4873b7395f3d59c64a57/p/8c2eb7fb9fb044d3b127691958a12e53
3) Video Link: https://drive.google.com/file/d/1vz0o0fCXSJOLm-K7Iji3lqmXQDXKxW0T/view?usp=sharing

Arnesh

THANKS FOR LISTENING