



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Nathan Tran	Project Number J1032
Project Title Robotics Preserving Our Natural Environment through Recyclable Objects	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective is to determine if the designed built robot can aid the cause to remove recyclable objects from human and natural environments.</p> <p>Methods Programming site, robotics parts, two phones, gaming controller, stopwatch, variety of testing variables. All parts were made by robotics manufacturing companies. The design, building, and programming was all done by two bare hands. No help was given on designing the robot, building the actual robot, and programming the robot. To access the programming website the two phones must be connected through a direct wifi connection, while also connected through an app called FTC Driver Station and FTC Robot Controller. Then a computer needs to join the wifi direct signal to access the programming site called FIRST robot controller console. Upon this site programming can either be done using Java or blocks, which later can be downloaded onto the robot in order to control it. Five units of a variable is set onto a field where the robot will be timed on how fast it can gather these variables, with each variable being tested ten times.</p> <p>Results Testing the robot upon the variables of plastic water bottles, cans, and plastic bags a conclusion was made noticeable upon each and every trial. The design of the claw made it difficult to pick up variables that had a smaller mass, how ever on the other hand the claw made it easy to gather variables with a larger mass. The design of the robot makes it easy to grab larger objects, like plastic bags, rather than smaller objects, like crushed objects.</p> <p>Conclusions Smaller masses have grown as a problem for the robot as it has grown difficult to gather into its storage system. This is known as the variables with larger masses had took less time to gather with the robot. With the knowledge that objects with smaller masses are difficult to pick up it shows that future designed robots missioned to gather trash off from the natural environment must efficiently gather the smaller objects while still having the ability to gather the larger objects too.</p>	
Summary Statement I built a robot to see what object would take the least amount of time to gather, which I found out to be the objects with the most mass all the way to the least mass.	
Help Received I designed, built, programmed, and tested each trial myself without any help. My Science Fair Mentor reviewed all paperwork upon the board and notebook of my project.	