



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Patricia Limon; Elissa Monterroso; Lizbeth Romero	Project Number S1016
Project Title Expanding the Lifespan of a Plant through a Self Watering Flower Pot	
<p style="text-align: center;">Abstract</p> <p>Objectives Caring for specific plants can be difficult, especially for individuals with busy schedules. Many existing solutions to this problem deliver limited functionality at a significant cost. To address that issue, we designed an affordable and visually appealing self-watering pot for small indoor plants. The pot would automatically water plants depending on the moisture level of the soil while monitoring other important data of the growing plants including light levels, humidity, temperature, and the water level of the water supply. To accomplish this, we designed, printed, wrote code, and tested our design. We utilized an Arduino as the microcontroller for the monitoring and controlling the devices.</p> <p>Methods To make a functioning planter we had to consider the many factors that plants need to survive. For this reason, we researched the topic and found that water, temperature, soil, and light are crucial elements that plants need. We decided as a group to incorporate those on our planter as sensors. These sensors will detect the elements stated above while at the same time interacting with the plant. We tested our sensors and made sure our 3D printed pot was large enough to fit the plant, wires, and plumbing. Most codes for the sensors we chose to incorporate were provided by the internet, despite this they required modification. After conducting a trial and error with the design of our pot, we were able to redesign it so it holds and hides everything properly and most importantly, achieves our goal of making a self-watering pot</p> <p>Results We accomplished our goal of creating a self-watering pot that compliments human interaction because we were able to program, code and design a self-watering planter that could sustain itself. This can be done through our many sensors because it is capable of informing the plant owner of their plants living conditions.</p> <p>Conclusions The initial purpose of our watering pot was to help busy individuals extend the lifespan of their plant. However, upon further reflection, this cheap invention would also able to contribute to research in the botany field. For example, if a researcher wants to see how much water, fertilizer, pesticide, etc, is best for a plant, the watering intervals allow one to see what works best for a plant instead of worrying if it is time to feed water the plant or not.</p>	
Summary Statement Overall we were able to accomplish our goal of creating a self-watering plant that was self-sufficient.	
Help Received Most aid was provided by our Physics Honors Teacher, Mr. Gagnier and our Teacher s Aid, Mr. Mao. Both teachers provided insight pertaining to coding, programing and organizational skills.	