



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>Anay Bhakat</b>	<b>Project Number</b> <b>J0905</b>
<b>Project Title</b> <b>A Tool to Effectively Water Plants by Measuring the Soil Moisture</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this project is to create a tool that can water plants with the appropriate amount of water thus reducing water wastage and ensuring proper plant growth. <b>Methods/Materials</b> Arduino Uno, Electronic Soil Hygrometer, Electronic Relay, Solenoid Valve, Bread Board <b>Results</b> The experiments showed that we can effectively water plants by measuring soil moisture. A simulation of watering a 150 sq. ft of vegetable patch using this tool taking into account the daily temperature and precipitation of San Francisco for a year predicted about 6000 gallons of water savings. <b>Conclusions/Discussion</b> This tool is a significant improvement over the current timer based drip irrigation techniques. It saves water and ensures proper plant growth.	
<b>Summary Statement</b> I have developed an effective tool to optimize the water given to plants thus reducing water wastage and ensuring proper plant growth.	
<b>Help Received</b> I developed the code for the Arduino Micro Controller based on some tutorials that came with the tool. My Father helped review the code for correctness.	