Introduction

Gardening is an experience that immerses us in nature, it allows us to produce our own vegetation or bloom beautiful flowers for ourselves or as gifts to loved ones. As society grows and the economy increases in pace, we tend to lose our abilities with nature. Our busy lifestyles has us forgetting some of the basic skills of maintaining a common house plant. The solution comes with adaptation. The new age brings technology and nature together to produce fruitful vegetation without the stress of maintaining it by hand. Our "Garden Gnome" kit is designed to do just that by providing a fully automated system and remote-control capability by the user.







Objectives

The goal of the "Garden Gnome" kit is to provide an exciting, stress-free experience

- Water plants when needed
- Monitor soil moisture
- Monitor ambient temperature/humidity
- Monitor water level in reservoir
- Control lighting based on plants needs
- Give the user control via WI-FI with provided smartphone app



Arduino UNO Wi-Fi Rev2 board

- Very compatible open-source
- Offers 20 separate input/out
- Fully programmable
- Built in Wi-Fi/Bluetooth con Firebase
 - Google powered developmen
 - Google Cloud Platform integr
- MIT App Inventor
 - App developer
 - Software utilizes a Designer
 - developing an app The Designer page is the interview.
 - components to the app
 - The Building Block page is f app's components using a co
- **Relay Module**
 - Excelity 2 channel 5VDC rel.
 - Uses both channels to contr
- lamp and the water pump **Tank Level Detector**
 - Gikfun M8 Liquid Level Sens
 - Monitor water level in the water
 - Uses a plastic ball that acts level is above the sensor



Automated Gardening System

"Garden Gnomes Kit"

Curtis Scott, Josh Clark, Alyssa Macias



Components

	Temperature/Humidity Sensor	
e microcomputer	AITRIP's DHT11 Temp/Humidity Sensor	-
itput pins	 Uses an 8-bit microcontroller to produce a digital output 	100
	• Temperature range of 0-50C(±2)	and and
mmunication chip	 Humidity range of 20-95pct (±5) 	
-	Moisture Sensor/ LM393 Chip	
it tool	KeeYee's High Sensitivity Soil Moisture Sensor	
grated to allow real-time data storage	LM393 Chip compatible to the Arduino system	
	LM393 Chip is a comparator that sends a HIGH or LOW signal	1
	based on the set value of the on-board potentiometer	
and Building Block system in	Digital and Analog output capabilities	
	Water Pump / Tubing	
erface for adding functional	Adafruit's 3VDC Submersible Vertical Water Pump	and a state
	DC pumps that draws 100mA	
for building the functionality of the	Flow rate of 1gal/min	
oding system (JAVA)	Grow Lamp	
	• USB powered light fixture with 8 white LED bulbs	
lay module (Part No. EL23)	Power Source	
rol the power delivered to the grow	 110VAC to 9VDC wall wart to power the Arduino board and 	
	subsequent pins	
	• An outlet plug runs through channel 2 of the relay module to	
sor	power the grow lamp	
ater reservoir	Tinkercad	
as an open switch when the water	 Tinkercad is an easy-to-use web app that equips designers and 	
	engineers with the foundational skills for innovation: 3D	-
	design, electronics, and coding.	~









2018.

Results





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Acknowledgments

We would like to attribute our success to Dr.Abdelrehim, without whom we would not have the guidance to complete this project. We would also like to thank "Best Cabinets" located in Bakersfield, CA for constructing the housing unit of our kit.

