FAU
COLLEGE OF ENGINEERING & COMPUTER SCIENCE
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Intro to Embedded Systems: Executive Summary

Smart Garden Assistant

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Introduction

Group 27 worked on the Smart Garden Assistant project, making it easy to support the plants by allowing easy access to control and data about the plants' condition; this makes our project environmentally friendly. Using our Smart Garden Assistant as the technology to take care of the plants will be something the future generation will appreciate.

Watering System

All the actuators in our subsystems will turn on and off the actuators based on logic and on real-time information. In the motor subsystem, if the moisture level of the plant is very low and it needs water, the amount of time the water will be pumped into the plant will be inversely proportional to how much water is in the plant. The pump will also not send too much water into the plant so that it will not overflow the plant. The motor subsystem is that the Pi will search what time it is and will close the blinds if the current time is between sunset and sunrise since no light will be coming into the plant. Also, the user can set in their own optimal values for the system to make the plants go towards, and the system will also know that it will follow the new set of user values and not the default values.

User Interaction

To ensure that our system is reliable, meaning that regardless of where the user can access their plant condition and ensure the actuators keep the plant in conditions the user prefers. Hence, we connected our system to the VNC viewer app using Bluetooth and WIFI connection from the Raspberry Pi. This way, the user will know the system is working because they can monitor it with a smartphone. The app would be able to control all the subsystems over the WIFI. This project will target people who have a small plant garden or some flowers in pots, but the concept can be expanded to fit a larger group.

Why this is Useful

The system can be used for anybody and is also designed for everybody to use. Everyone has plants in their backyard or lawn and all they would need to do is to pull out their smartphone and use the VNC Viewer app to control the plant if they want to change how the system maintains the plant. It is smart and efficient so people will not have to worry about watering their plants and they also do not need to fret about if the system pumps too much water into the plant because the plant is smart enough to not do such a thing. The code that runs the program is well-written and it is smart enough to not perform careless mistakes.

Bottom Line

At the end of the day, the goal of technology is designed to make our lives easier in a way. This embedded system is no different as it saves people the time of day of having to water the plants or opening and closing the blinds. We designed this system because in this day in age with climate change, we need to grow more plants and not let them die.