Plant Pal

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Goals

▶ Create a way that a plant owner can know if they are taking good care of their plant, as well as if they want an automaton to water their plant for them.

I forgot to water my plant, uh oh!

Merits

▶ Similar technology to this exists in greenhouses and the like, however that kind of technology is not actively available on a smaller scale for general plant owners

Cost to Install a sprinkler system

   - Going down to 4c, you can see that the listed cost for installing an automatic sprinkler system is on average 2.6K. We're able to make this for an individual machine for about $100 total in parts.

Impacts on Society

- This is a way to monitor your plant's water and moisture levels as well as having it be automatically watered.
  - (That means this will not have a significant impact on society)
- That said, this application can add another layer of convenience to plant owners.

Design Specifications
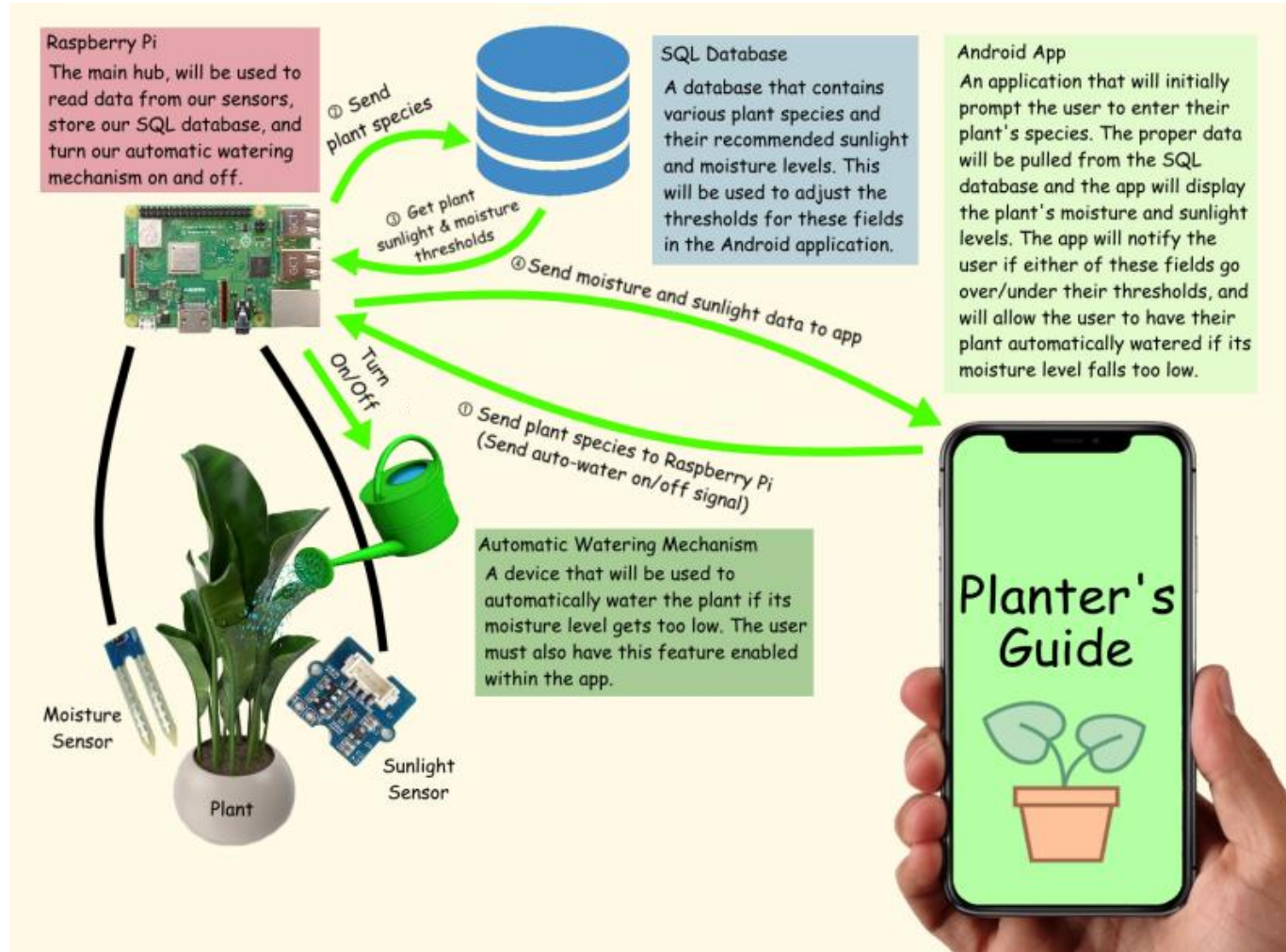
Technologies

Languages used: Android (application), SQL & PHP (database), Raspberry Pi communication (Python)

Physical Components: Raspberry Pi, Sunlight and Moisture Sensor

Automatic Watering Device Components: Pump, tubes, water reservoir, wires

Milestones

By 3/1/2022:

- Have all individual individual components finished

- Begin work on having the components communicate with each other

3/26/2022:

- All baseline components of the project are finished. Continue to iron out smaller issues before the expo, make UI cleaner, etc.

Results

Our app currently utilizes our remote mySQL database to grab user plant information if stored prior. If not, the app allows the user to select a plant from our database, and the appropriate values will be pulled for the user to see. The user can then monitor the plant's current health. With sunlight, it's a little tricky to discern how much sunlight a plant needs in a day since the sun being out is not a constant, however the plant will be automatically watered when it falls below its threshold.

As long as the app is open, the app will pull from the database every 5 seconds, and the user can force the raspberry pi to return current sun and moisture values with a request button.

Challenges

Figuring out how to let the app communicate with the Raspberry Pi WITHOUT being on the same network.

　　- Currently we have port-forwarded our personal home router to allow external access for the app. This works fine for the Raspberry Pi, however it is not something we were able to make work in time for the Android app since it heavily relies on XAMPP and PHP