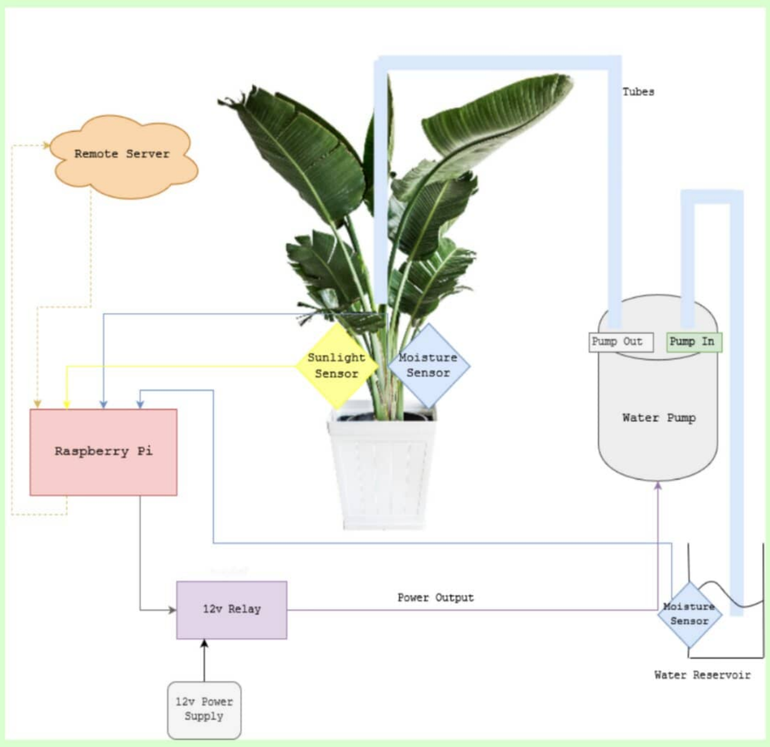
Overview

A majority of the US populace owns at least one houseplant, so wouldn't it be nice if you could easily care for it?

Enter Plant Pal, an app and device pair that were designed with the common plant owner in mind.



The app communicates with an automatic watering device hooked up to a water source. When your plant needs watered, the Raspberry Pi will recieve a signal to water the plant.

From the start, Plant Pal's UI and methodology was designed to be simple, and user friendly, allowing for being able to easily integrate the product into one's daily life!

Plant data was retrieved from Pfaf.org

Plant Pal

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The Android app and Raspberry Pi communicate through a remotely hosted mySQL database. The database is hosted using XAMPP & PHPMyAdmin

Time	WaterResevoirState	SunlightStatus	CurrentSunlight	CurrentWater
2022-03-25 22:18:31	Full	temp light state	0.28	0.1
2022-03-25 22:19:32	Empty	temp light state	0.34	0.95
2022-03-26 11:35:36	Full	temp light state	1.16	1.71
2022-03-26 11:36:42	Full	temp light state	0.24	-0.04
2022-03-26 11:37:42	Full	temp light state	0.27	0.36

ID	Plant Name	Latin Name	Water Level	Sunlight Level
1	Aibika	Abelmoschus manihot	M	N
2	Silver Fir, Christmas Tree Fir, European Silver Fi...	Abies alba	M	FSN

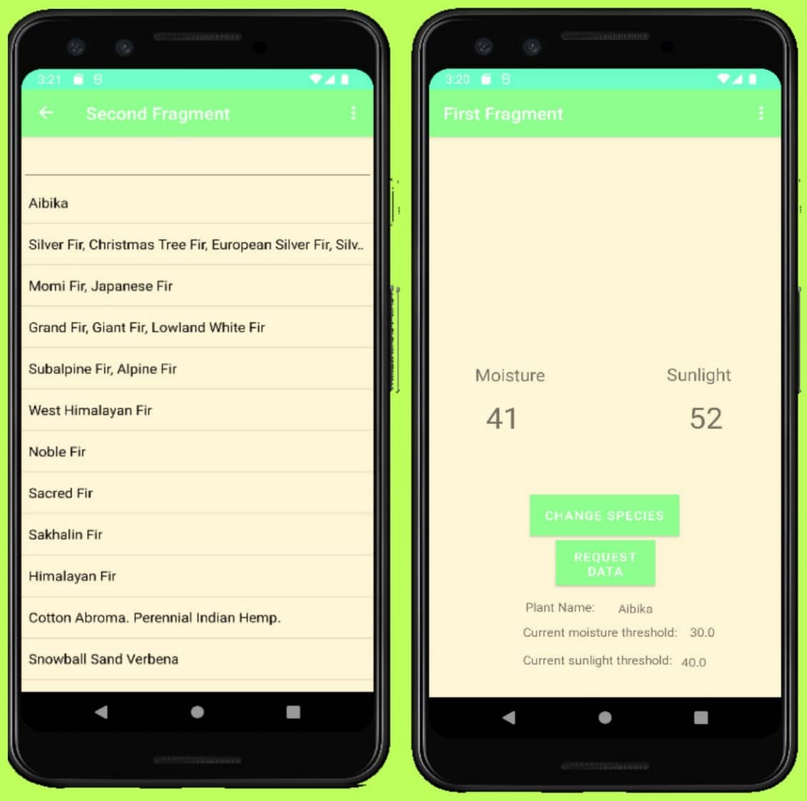
The Raspberry Pi communicates using a Python script, while the Android side communicates using php files and Volley.

```php
$con=mysqli_connect($host,$username,$pwd,$db) or die('Unable to connect');

if(mysqli_connect_errno())
{
    echo "Failed to Connect to Database ".mysqli_connect_error();
}

if(isset($_GET['id'])) { $id = $_GET['id']; }
if(isset($_GET['plantName'])) { $plantName = $_GET['plantName']; }
if(isset($_GET['moistureThreshold'])) { $moistureThreshold = $_GET['moistureThreshold']; }
if(isset($_GET['sunlightThreshold'])) { $sunlightThreshold = $_GET['sunlightThreshold']; }

$query = mysqli_query($con,"UPDATE usersetting SET id='$id', SelectedPlant='$plantName',
MoistureThreshold='$moistureThreshold',SunlightThreshold='$sunlightThreshold'");

if($query) {
    echo "successful update!";
} else {
    echo "update unsuccessful...";
}
mysqli_close($con);
```

With the SQL database as the backbone, the Android acts as a simple UI that displays all the information a user might want to know, and the Rasberry Pi can run and continuously log information for later use.

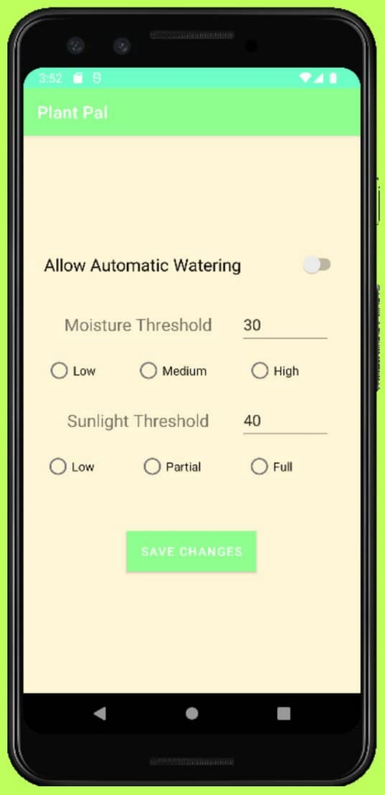
Design

Results



The user is initially greeted with a simple interface. This shows the plant's moisture and sunlight percentages, as well as their thresholds.

The user can use the 'change species' button to choose their species of plant, and their thresholds will change accordingly.



The user may also manually set threshold values, and turn auto watering on or off using the settings menu in the top right of the app.

By using and improving Plant Pal's design, we hope to be able to help more owners keep their leafy friends alive!