Feasibility report : MiniProject 4th sem Team 10

Project title:

Automated Plant Monitoring And Management System

Motivation:

Automated plant monitor, maintaining and care-taking system with no external effort or human interaction involved. A one-time instalment of portable greenery and mini biomes.

Problem statement:

Often we have avoided maintaining even a small garden as it requires maintenance and constant care. To make this easy in the cities where plants are rapidly depleting, we plan on making automated and self-monitoring mini biomes, which are aesthetic as well as easy to install anywhere within our homes. Considering how people have to keep traveling or working away from their home for long hours and will not be able to look after the plants, we intend to normalise biomes in cities with various plants and smaller trees. Added to these, plants also die out even after much care and attention due to the large number of variables involved that change rapidly like weather, humidity, sunlight, rain and so on.

Survey

https://www.deccanherald.com/city/bengaluru-infrastructure/depleting-green-cover-a-grey-area-of-concern-724779.html

https://www.treesforcities.org/stories/trees-in-our-cities-10-reasons-we-need-to-plant-more

Hardware and software

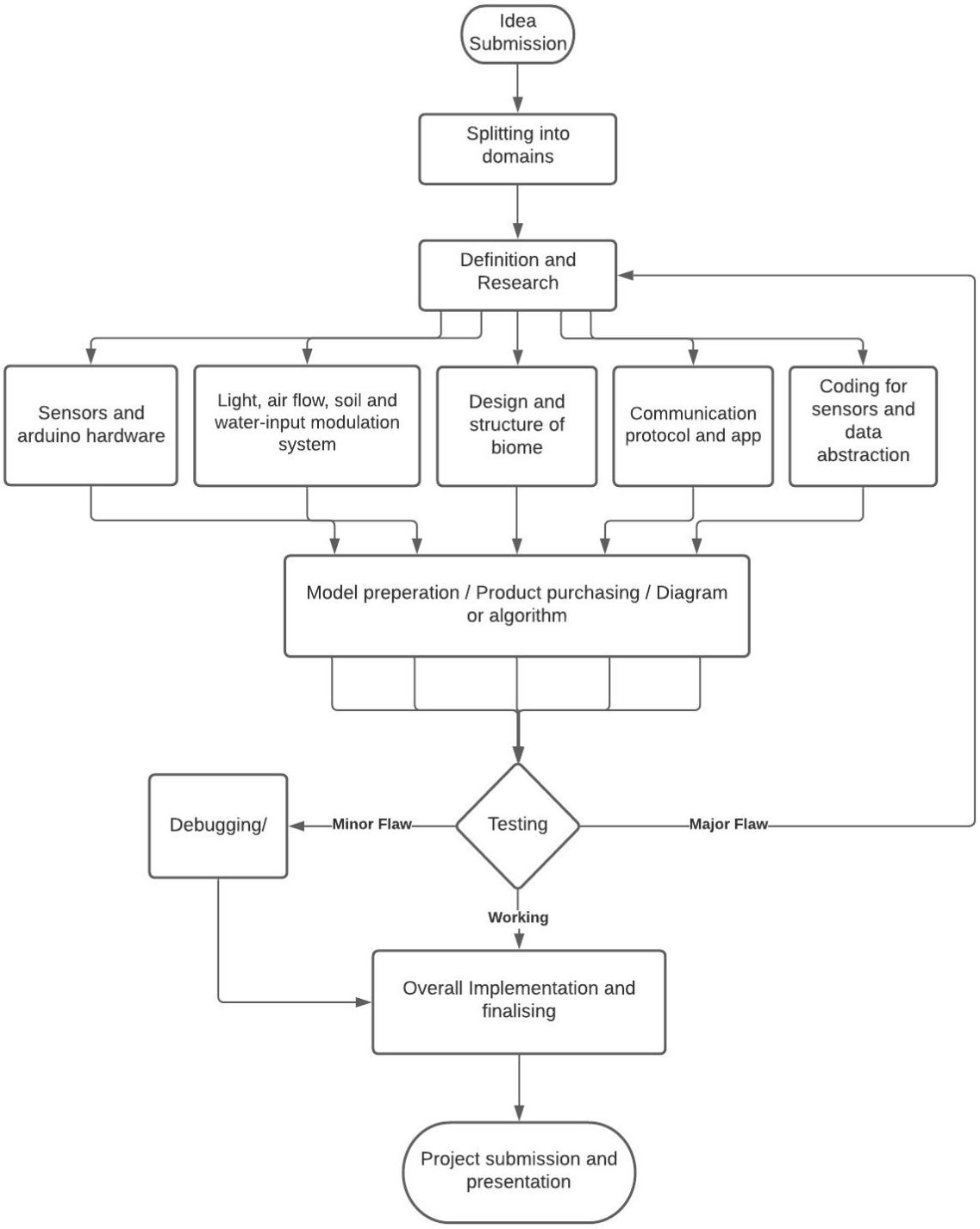
Hardware

1. Arduino
2. Raspberry pi
3. Sensors

Software

1. Python
2. Arduino
3. Android App / Web App

Workflow


Idea Submission
Splitting into domains
Definition and Research
Sensors and arduino hardware
Light, air flow, soil and water-input modulation system
Design and structure of biome
Communication protocol and app
Coding for sensors and data abstraction
Model preperation / Product purchasing / Diagram or algorithm
Debugging/
Minor Flaw
Testing
Major Flaw
Working
Overall Implementation and finalising
Project submission and presentation

Deliverables :

The final product will result in 2 parts: the biome and an app. The biome itself will contain a display that shows details about the biome itself in real time, such as temperature, humidity, light intensity and so on. The app will tell the user about the schedule (time of watering, greenhouse, uv light and so on) as well as the current details on the biome. End product with at least 2 weeks of testing, and care-taking of any 1 indoor plant.

Time Chart

Phase 1 :

1. hardware and software collection.
2. Circuit designing
3. Sensor interfacing

Phase 2 :

1. Automation implementation
2. And research on plants

Phase 3 :

1. Web Scraping
2. Rough forecasting

Phase 4:

1. Android/Web app
2. Implementing iot
3. Final testing

Phase 5 :

1. Testing and fixing issues
2. Final product

Reference

[1] Anusha k, U B Mahadevaswamy,"Automatic IoT Based Plant Monitoring and Watering System using Raspberry Pi", International Journal of Engineering and Manufacturing(IJEM), Vol.8, No.6, pp.55-67, 2018.DOI: 10.5815/ijem.2018.06.05

[2] D. Divani, P. Patil and S. K. Punjabi, "Automated plant Watering system," 2016 International Conference on Computation of Power, Energy Information and Communication (ICCPEIC), Chennai, 2016, pp. 180-182, doi: 10.1109/ICCPEIC.2016.7557245.

[3] www.internetofthings.com

[4] www.Raspberrypi.org

[5] www.sensors.com

[6] www.arduino.cc

[7] forum.arduino.cc/