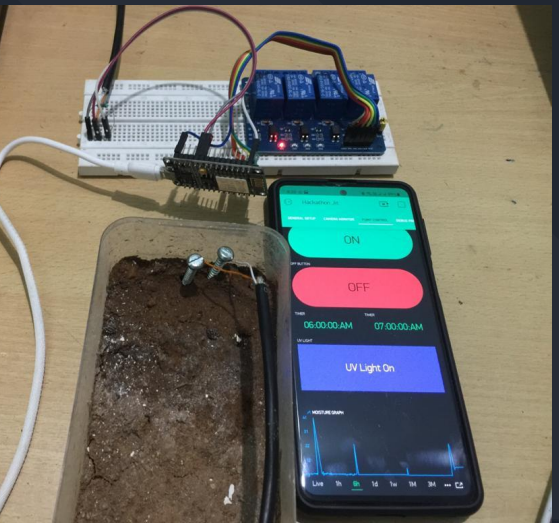
Farm Management Layout



By Sudhanva SP

Farm controller

Main goal is to make a remote sustainable farm management solution which handles tasks without Human interaction

Smart and precision farming is pretty much the way to go in the near future.By integrating advanced modules to enhance the lifestyle of the modern farmer. As an added bonus it enhances the efficiency of the crop plantation and energy use to ensure sustainable farming by reducing the burden of tedious and monotonous tasks on the farmer.

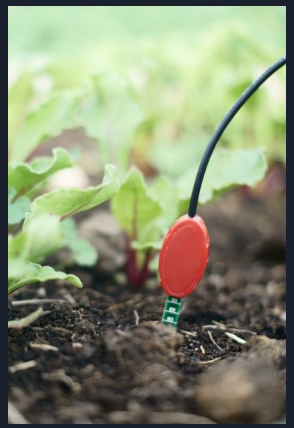
Project Goals

1) Remotely Turning the water source when desired
2) Measuring the Soil Moisture level
3) Insect Trapper to get rid of the insect pests by attracting them to a particular source of light
4) Automatic illumination/lamp of the farm
5) Surveillance Camera to monitor the farm

Blynk Server

Nodemcu

Blynk app on a Smartphone



Hardware used

1) Nodemcu
2) 4 Channel Relay board
3) A home made soil moisture sensor
4) A Smartphone to install Blynk app to control the setup
5) IP cameras to stream the video

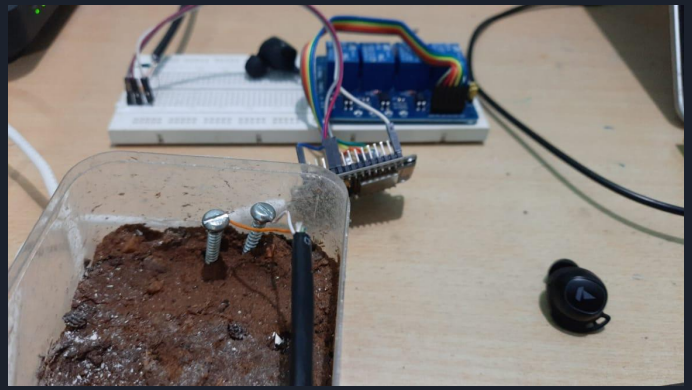
Benefits of Integrated all in one solution

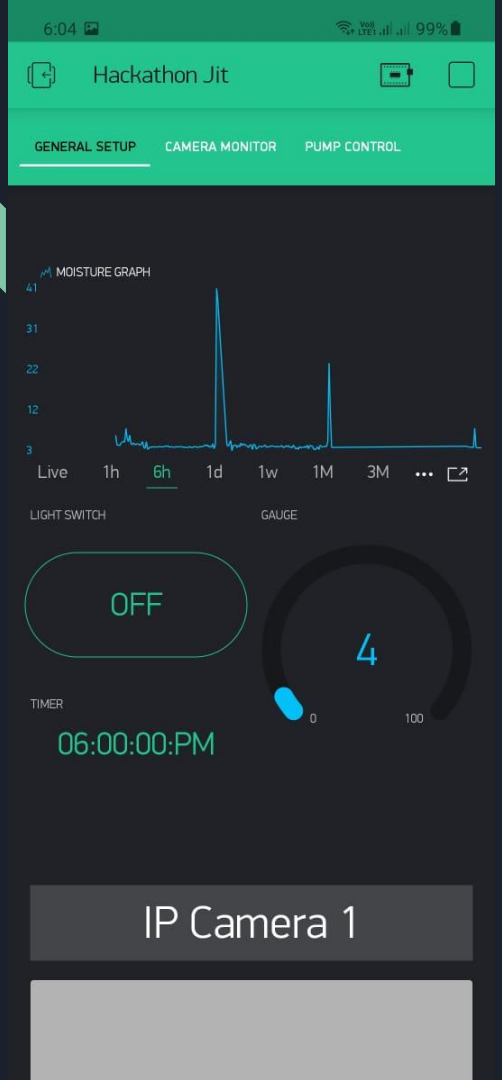
- Better for analysis
- Real - Time Data
- Easy and a one stop solution for the consumer
- The simplicity of use through a single interface
- Cost effective
- Easy Diagnosis

Problems during development

Problem	Solution
Faulty Nodemcu hampered the progress during development	Once a new Nodemcu was acquired things progressed much smoothly
Lack of Moisture sensors	Made a moisture sensor in house
Lack of team mates due to recent admission into college	...
In ability to acquire IP cameras on short notice	Using old phones as IP cameras instead

Screenshots of the program under execution




6:04
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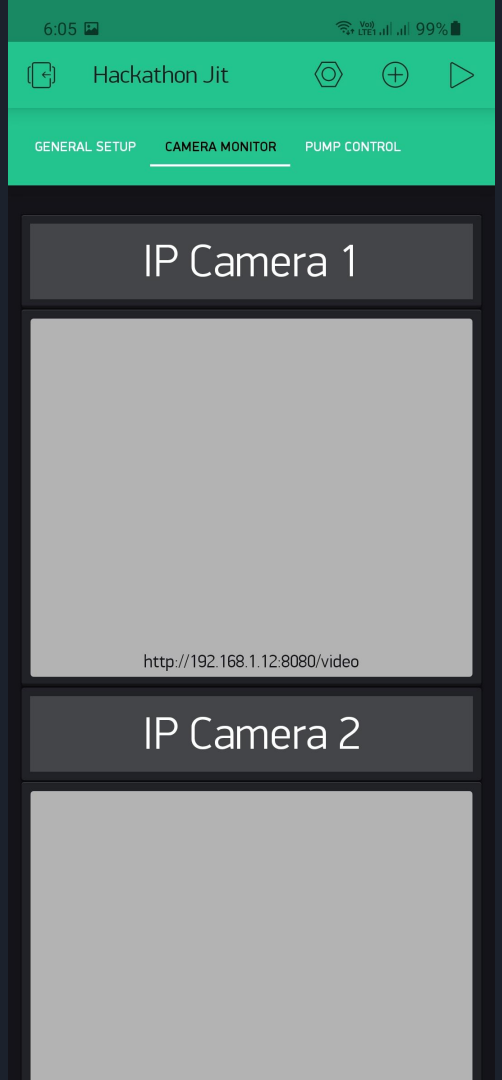
Hackathon Jit
GENERAL SETUP
CAMERA MONITOR
PUMP CONTROL
MOISTURE GRAPH
41
31
22
12
3
Live
1h
6h
1d
1w
1M
3M
LIGHT SWITCH
GAUGE
OFF
4
0
100
TIMER
06:00:00:PM
IP Camera 1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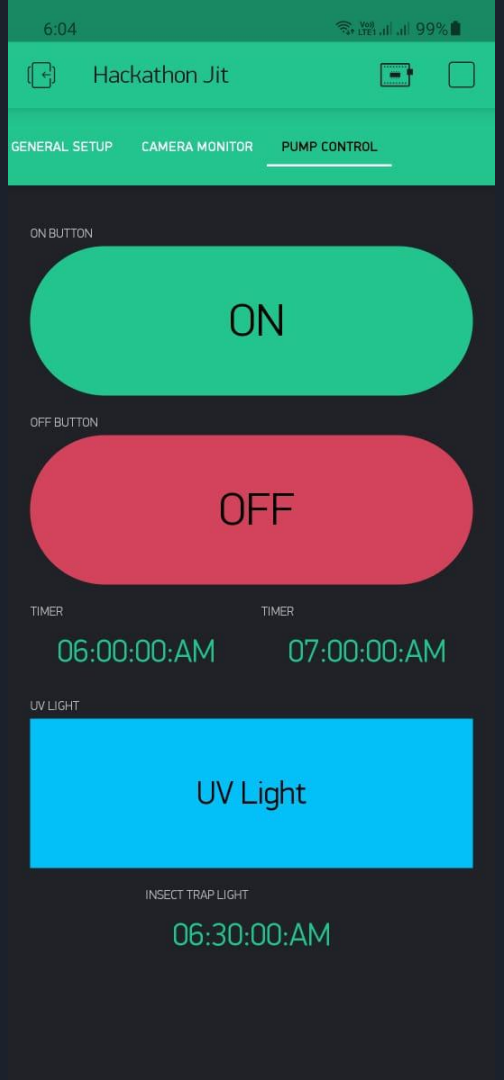
Hackathon Jit
GENERAL SETUP
CAMERA MONITOR
PUMP CONTROL
IP Camera 1
http://192.168.1.12:8080/video
IP Camera 2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Hackathon Jit
GENERAL SETUP
CAMERA MONITOR
PUMP CONTROL
ON BUTTON
ON
OFF BUTTON
OFF
TIMER
06:00:00:AM
TIMER
07:00:00:AM
UV LIGHT
UV Light
INSECT TRAP LIGHT
06:30:00:AM

Interesting Byproducts

Managed to make a local server that can run projects. This results in all the data being under a single umbrella and doesn't go to an unknown/ remote location

Domain id : www.blynkforjit.onthewifi.com

Port: 8080 for hardware and 9443 on the Smartphone

Because the Data is routed through a DNS Service one can control the equipment no matter the location, ie all across the world.

Interesting Byproducts

The data collected from the moisture sensor can be used to track the overall performance of the soil all over the year.

This can if combined with other data sources provide useful insight to the development of the farm year after year.