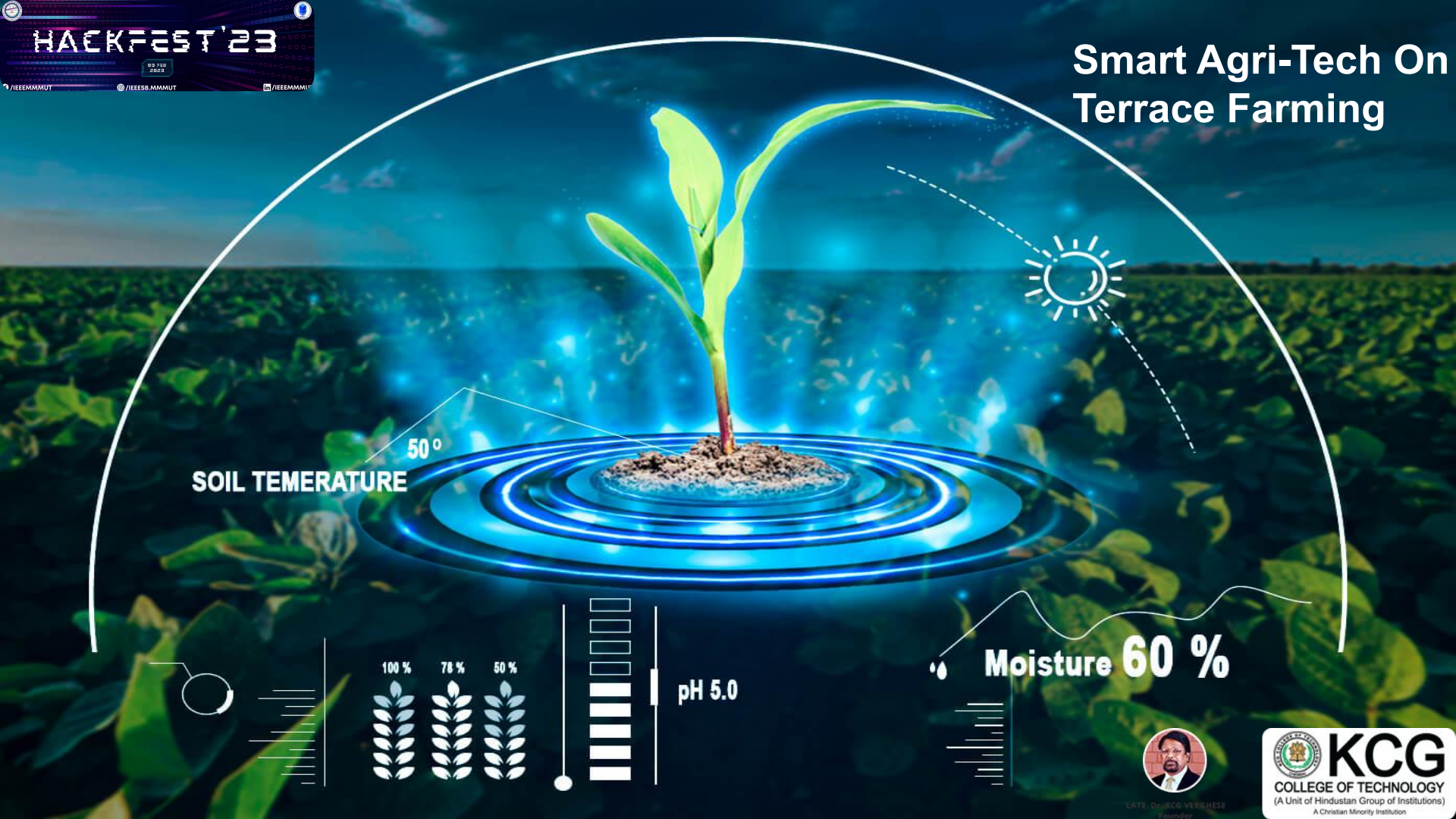
HACKFEST'23
/IEEEMMMUT
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Smart Agri-Tech On
Terrace Farming
50°
SOIL TEMERATURE
100 %
75 %
50 %
pH 5.0
Moisture 60 %
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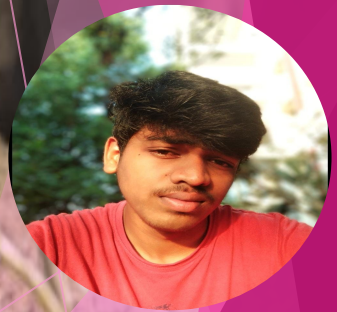
Team Trio Electrofest:

- Shaik altaf - 2nd Year Electrical Engineering



- Newton Raja K - 2nd Year Electrical Engineering

- Sriman Chakkaraverthy M - 2nd Year Electrical Engineering

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Problem Statement:

- ★ *The world is facing many problems nowadays, including a growing number of people living in cities, many of whom often do not have easy access to fresh food and the lack of Agriculture due Inadequate of lands. . To solve this problem, it is necessary to develop a new kind of agriculture that provides city residents with food security while also protecting the environment*

- ★ *Due to Urbanization, people destroys agriculture land and converting that into real restate sector or Apartments..*

- ★ *Due to that, there is a shortage of food to the creed and fulfil the society needs the industries and corporates are come up a man-made food product with mixing with different chemicals, chemical fertilisers to produce more yield with that the soil will loses its stability and its strength due to that there is huge damage to the environment as well as to the agriculture sector*

Why not other problem ?

- **It plays a big role in a nation's revenue**
  - *Speaking of trade, developing countries still get most of their national income from agricultural exports. While developed countries don't depend on agriculture as much as they used to, their economies would definitely take a hit if all exports suddenly stopped.*
- **It's crucial to a country's development**
  - *Economic development is tied to a country's agriculture sector. When trade, national revenue, and employment are combined in a positive way, a country enjoys reduced poverty and Boosted economic growth*

- ***It can help to heal the environment***

  - *Agriculture possesses the power to harm or heal. When farmers prioritize biodiversity on their land, it benefits the earth. Having more biodiversity results in healthier soil, less erosion, better water conservation, and healthier pollinators.*

- ***It drives innovation in technology***

  - *Because healthy agriculture is so essential to a country's well-being, it's been the setting of some of the most exciting innovations in technology. Through artificial intelligence , blockchain software, gene manipulation, and more, scientists and farmers have been figuring out ways to increase crop productivity, use less water, and reduce negative impacts on the environment*

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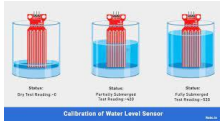
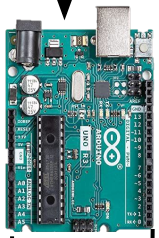
Solar Battery Backup

Soil Moisture Sensor

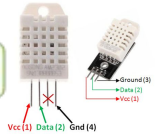
Arduino UNO R3

Water Level Sensor





DHT22

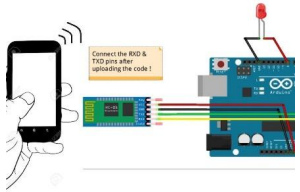


If the user is out of range from Bluetooth connectivity the user can monitor the condition of the field and can be controlled through mobile using internet connectivity via app

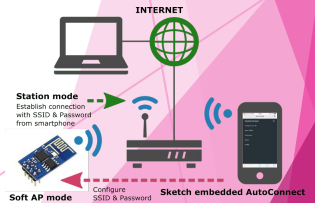
Camera Module

Water Pump for Water Irrigation

Water Irrigation for Organic Fertilizers



Once the data is received from the sensors through the Arduino it is sent the data to the mobile through Bluetooth module and from the mobile the irrigation system can be control



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Impact of terrace agriculture:

❖ IMPROVED AIR QUALITY

- ➢ *Rooftop gardens contribute to the reduction and filtering of polluted air particles and gases, not only through the plants and the photosynthesis process but also by deposition in the growing space*

- ➢ *Green roofs may also help reduce the distribution of dust in the air and the production of smog, which leads to decreasing greenhouse emissions in urban areas.*

❖ DECREASED WASTE

- ➢ *Rooftop gardens could potentially contribute to a decrease in waste, due to helping the materials and technologies used in the building to last longer. This can include the waterproofing membranes used on the roof, and the decreased use of heating, ventilation, and air conditioning systems.*

❖ EFFECTIVE USE OF RAINWATER

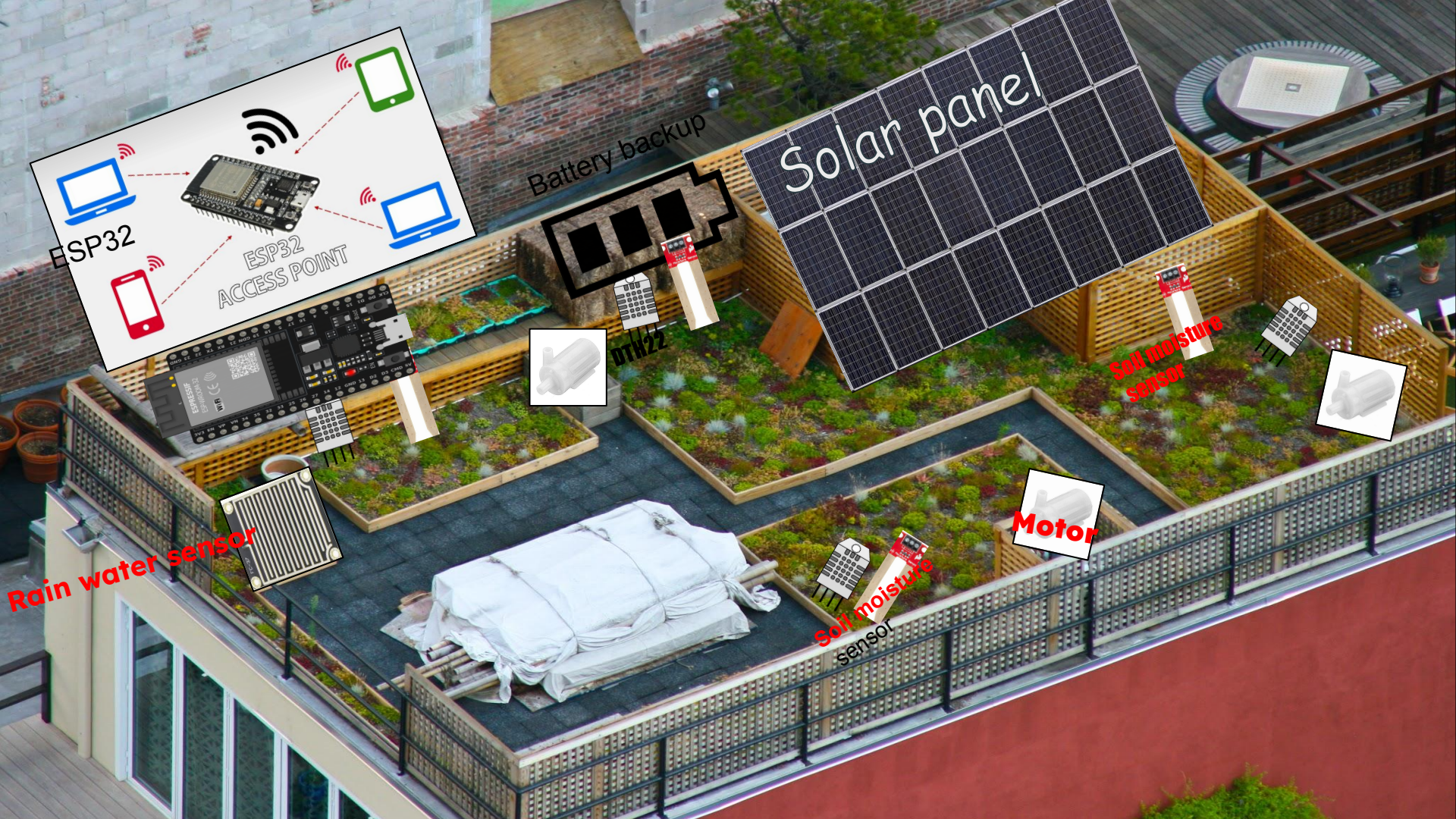
- *Rain is free water and energy we get from the environment, and rooftop gardens are perfect to make the most of it.*
- *Plants on green roofs use the rain immediately, and sometimes the excess is stored so that it can be used later. In summer, rooftop gardens can retain up to 80% of rainfall while in winter this can be up to 40%. After the water is used it it is returned to the atmosphere through transpiration and evaporation.*
- *Plants in rooftops not only retain rainwater but also help to moderate its temperature, acting as natural filters for any water that runs off the building. The chances of water runoff, however, is also decreased by rooftop gardens, reducing the impact this may have on the city and the possibility of local flooding.*

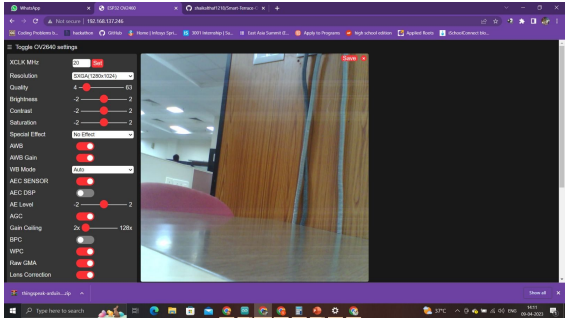
❖ URBAN AGRICULTURE

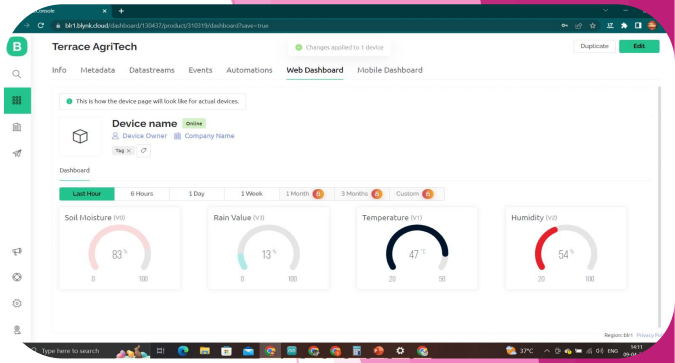
➢ *With rooftop gardens comes another environmentally friendly and booming initiative – urban agriculture. This involves using green roofs as miniature farms that actually produce fresh food.*

❖ WILDLIFE

➢ *Other than the different types of bushes, trees, plants, and invertebrates rooftop gardens can harvest, they can also be a perfect habitat for many birds, and act as a stopover for migrating species, allowing two different type of these to come into contact.*

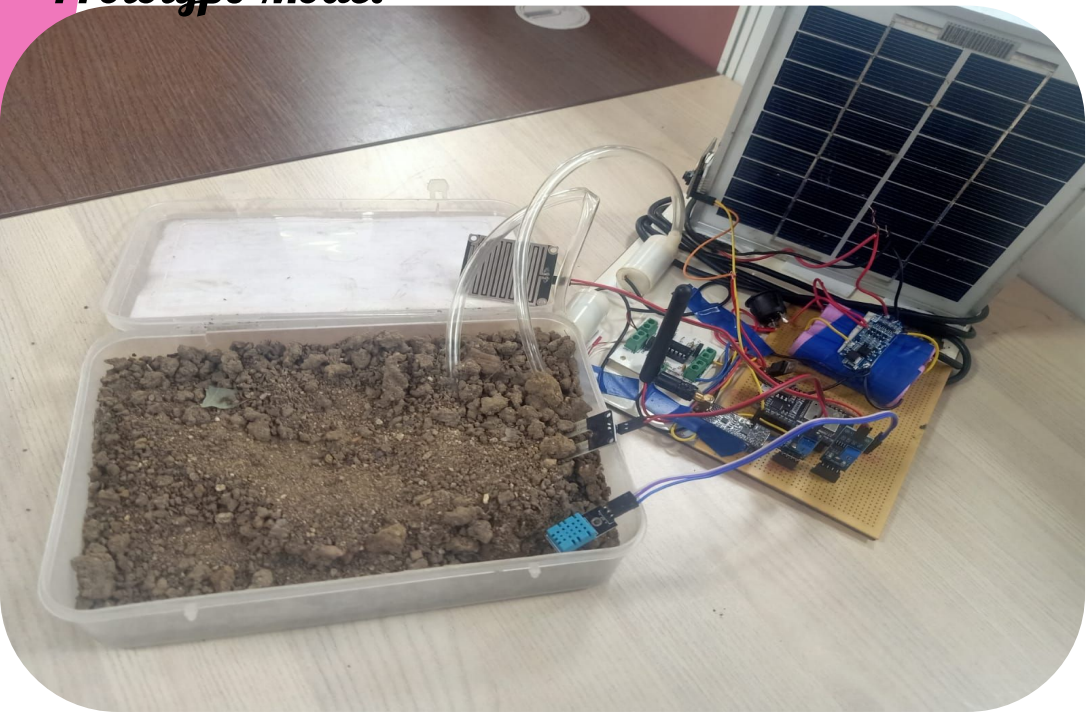

ESP32
ESP32
ACCESS POINT
Battery backup
Solar panel
DTH22
Soil moisture
sensor
Motor
Soil moisture
sensor
Rain water sensor

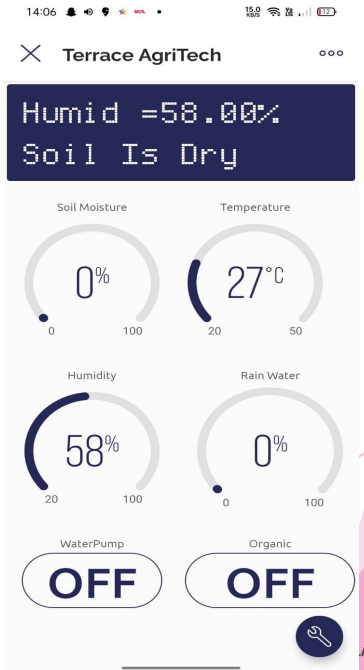




Monitoring through Camera

Prototype Model





Monitering Through App

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PROBLEM

Nowadays in india we are facing more problems in the agriculture side because of converting agricultural land into plots due to increasing of population and food scarcity also increasing, to creed and fulfill the social needs. For this problems we have came up with an suggestion.

Solution

To solve the problem we need new kind of agriculture that provides city residents with food security by protecting the environment by terrace farming.

UNIQUE VALUE PROPOSITION

Compatible with all organic.
Reduce water need by 30%.
Certification plant survival by 70%.

CUSTOMER SERGMENTS

Urban people.
Farmers.

ADVANTAGES

It provides organic food.
Food scarcity will be reduced.
It absorbs heat and gobale warming reduced.
Ultimately reducing carbon emission.

KEY METRICS

It provides organic food
Food scarcity will be decreased.

EXISTING ALTERNATIVES

Increasing farmers income.
Not converting agricultural lands into plots.

CHANNELS

Advertisement
News
Apps and
Websites

Cost Structure (8x10)m^2

WaterProof Plastic Wrapper ~ ₹ 1500
Iot Monitoring System ~ ₹ 5-6K
Battery Management System ~ ₹ 10K
Plumbing System ~ ₹8K
Other Maintances ~ ₹ 10 - 12K
Total ~ ₹ 38,000

LOW COST

ESP 32:	700/-
Solar panel:	700/-
Soil Moisture Sensor:	250/-
Split Phase Motor:	150/-
Connecting wires:	130/-
Plastic Wrappers:	800/-
Total:	2830/-

REVENUE STREAMS

Visualization of market demand.
The total number of users.
Through Advertisment

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