कृषि एवं किसान कल्याण मंत्रालय
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
सत्यमेव जयते

NABARD
NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT

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AGRISURE GREENATHON

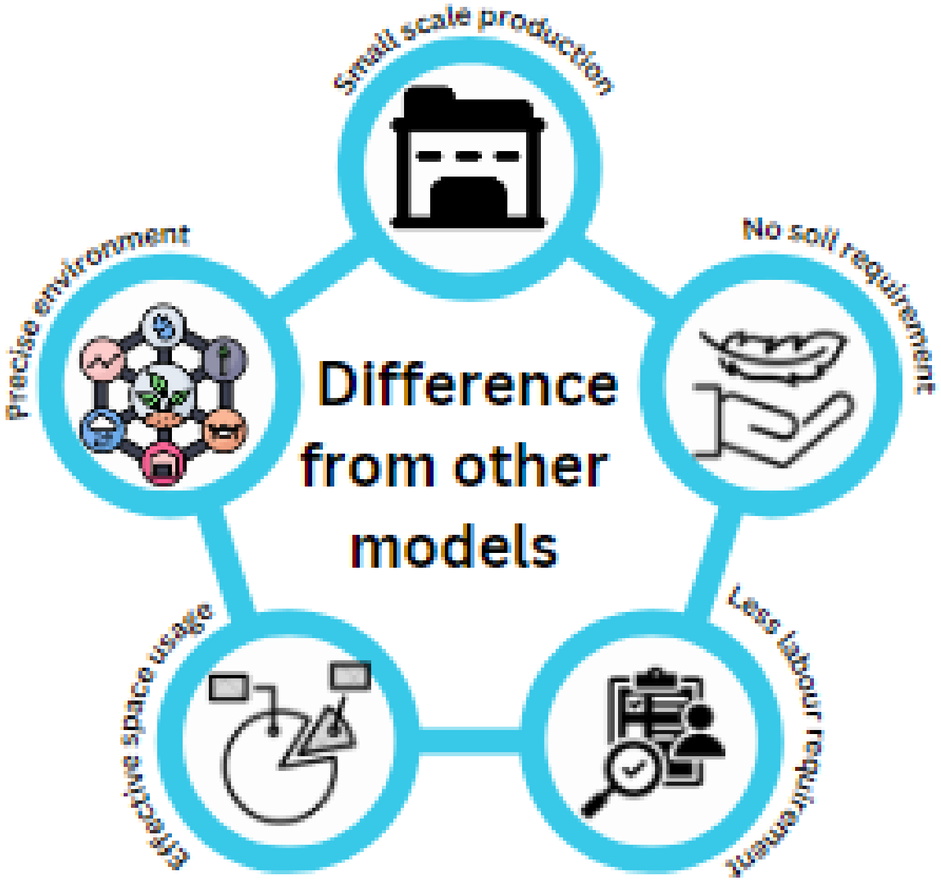
Team Details

- Team Name: Quad farmers
- Team Leader Name: DHARSINI R
- Problem Statement: Increasing demand for exotic crops(Saffron)

Saffron Cultivation

- Saffron enhances the flavor and color of foods, provides medicinal advantages, illuminates the complexion in cosmetics, is utilized in rituals and textiles and is economically useful as a high-priced crop and scent.
- Saffron is a lucrative crop for farmers who can invest the necessary time and resources. Cultivation of saffron in small areas with high yield throughout the year.
- Precise control over growing conditions can be achieved by indoor saffron farming, which prolongs the season and boosts productivity. Even in cities, it maximizes space utilization, lowers the prevalence of illnesses and pests, and improves resource efficiency.
- This approach is a good substitute for saffron production because it guarantees reliable, high-quality output, boosts regional economies, lowers imports, and encourages agricultural innovation.

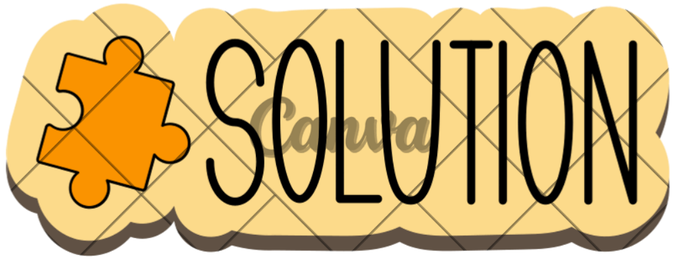
Opportunities



Unique selling Point

- Indoor Saffron cultivation Cost
- effective method
- Less space requirement Higher yield
- than conventional methods

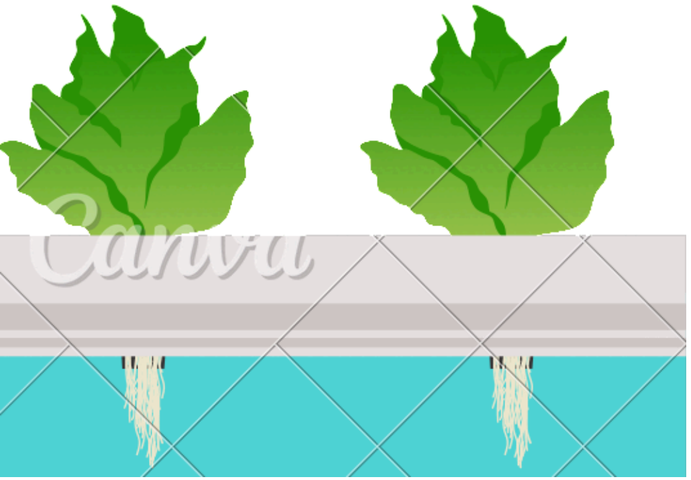
  Year around production
-

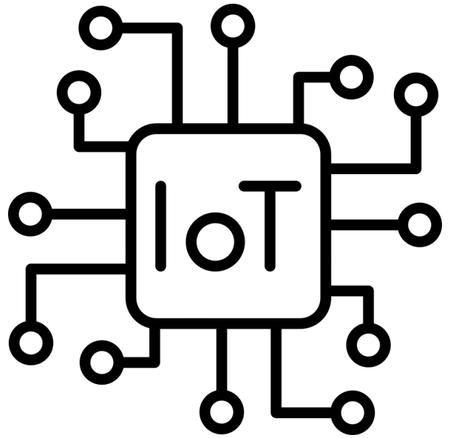


- Meets the increasing demand of saffron Promotes
- urban farming in low budget Reduces soil
- requirement
- Reduced pest attack and Disease

Features of the Solution

- The major feature of the solution is to construct the environment and budget friendly indoor set up for the cultivation of saffron
- Usage of hydrophonics technique to reduce water wastage and soil requirement
- IoT ingreated system for precision agriculture Real time
- monitoring system





Process flow diagram or Use-case diagram

Temperature and humidity controller

To give proper enrichment growth with warmer temperature

To maintain appopriate humidity to achive consisent growth of saffron

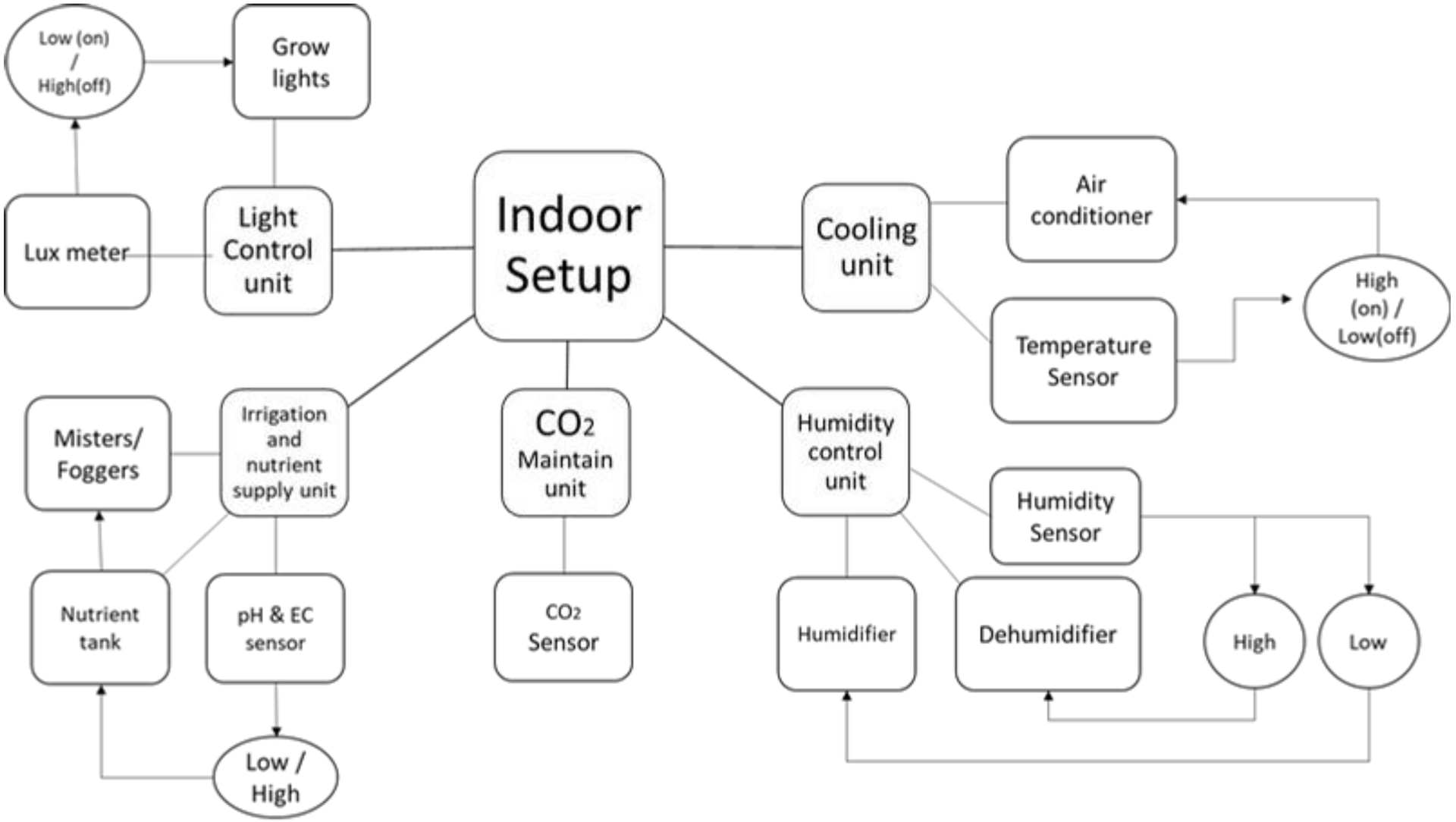
Indoor Setup

NUTRIENTS

To provide the essential micro and macro nutrients and maintains pH and Ec

To monitor plants and provide the sufficient remedies for the disease or deficiency

Architecture diagram of the proposed solution

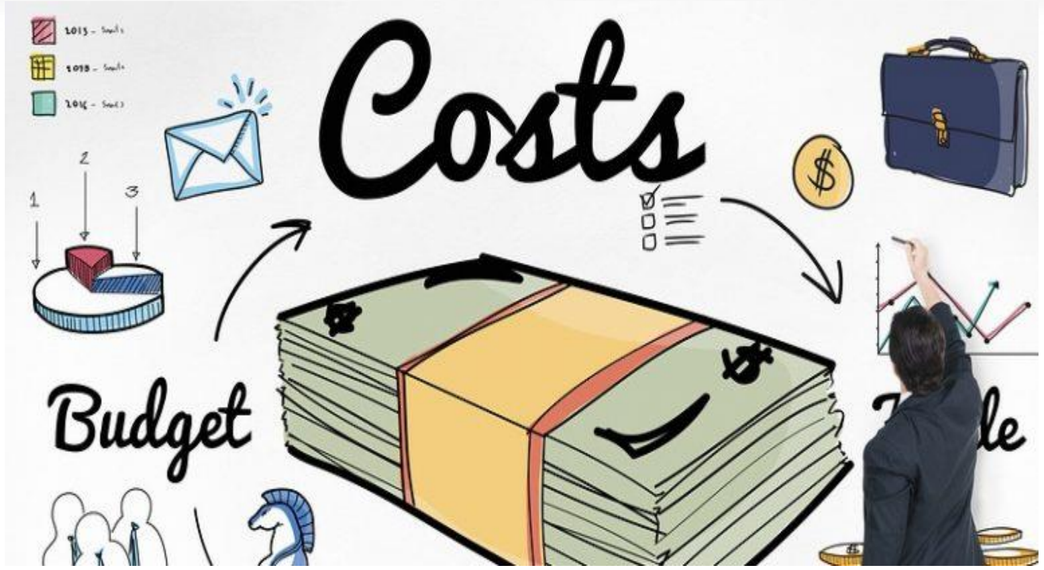


Technologies to be used in the solution

1. Indoor Setup
2. Climate Control Systems
- CVAC Systems: Cooling, ventilation, and air conditioning systems
- Dehumidifiers and Humidifiers
3. Lighting Systems
- LED Grow Lights.
- Light Timers and Controllers
4. Hydroponic Systems
5. Nutrient Delivery Systems
- Nutrient Mixers and Dispensers pH
- and EC Monitors.
6. Environmental Monitoring and Control Systems
- Sensors and Controllers -Temperature and humidity sensor, lux meter, pH and Ec sensor and CO2 Integrated Control
- Systems

Estimated implementation cost

Components	Quantity	Amount
Cooling system	1	5900
Sensors	1	4120
Indoor structure	1	5000
Lights	6	8000
Ventilator	1	700
Temperature and humidity controller	1	465
Saffron bulbs	5	15000
Nutritions	1	700
	Total	39885



Snapshots of the prototype

Prototype design

Prototype Performance report/benchmarking

Development of indoor setup

Pre treatment of the saffron bulbs

Planting them in the setup

Water and Nutrient providence

Pest and Disease control

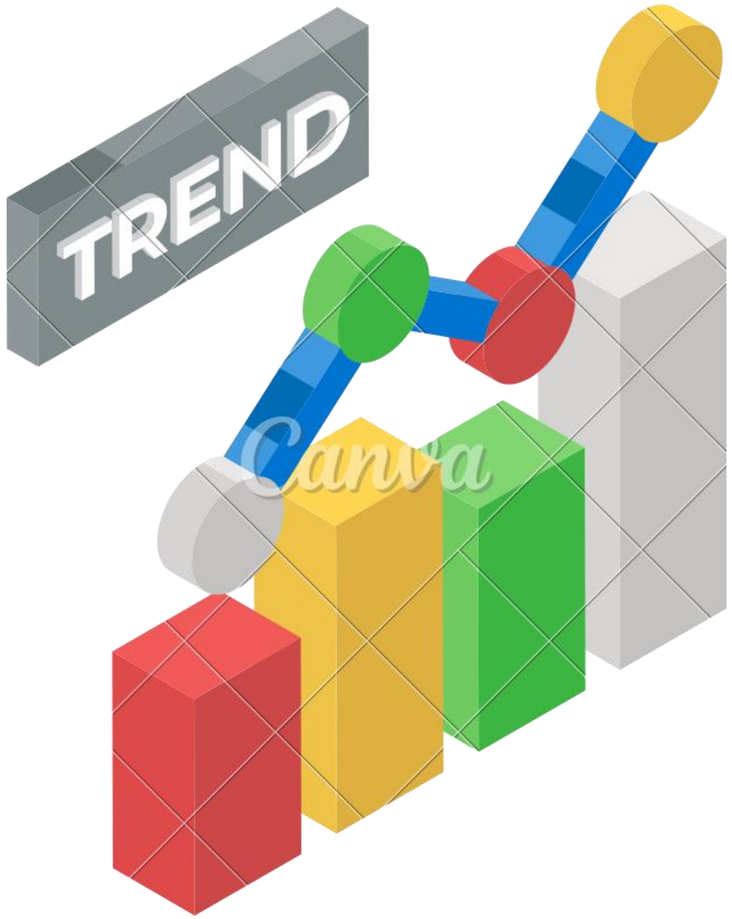
Regular monitoring

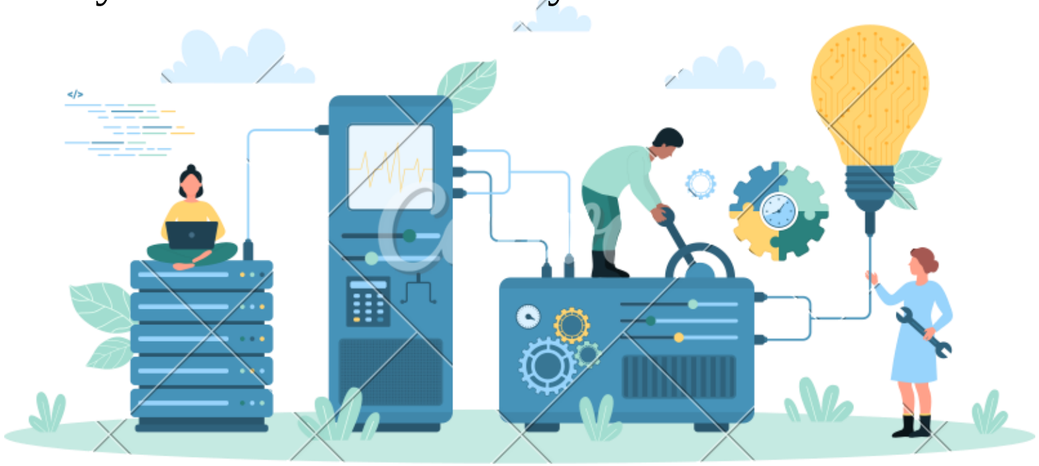
Harvesting & Propagation

Next set of Bulb

Future Developments

- More sustainable structures for the indoor cultivation of saffron Usage of
- renewable sources of energy like solar to meet the energy requirements of the cultivation
- Mobile controlled system
- Integration of aquaculture with saffaron cultivation to produce additional incomes
- Development of saffron byproducts from the saffron flower
- In vitro saffron propogation system to increase the yield and reduce the contamination





GitHub Public Repository Link & Demo Video Link

https://drive.google.com/drive/folders/1IzD4Jf7Hkol01liDBZ94ZvVb0IbFlviX?usp=sharing

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