**PROJECT PROPOSAL**

**TIH - IoT CHANAKYA Graduate Internship Program 2021 – 2022**

**SMART SPROUT DEVICE**



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# EXECUTIVE SUMMARY

Innovative element of our product is automated sprouting system using IOT (Internet of Things). The overall idea is to develop and prevent sprout spoilage or pre matured rate of sprouting .

This document will summarize about the new technology system connecting with IOT in the way of executing Green and Healthy INDIA .

# BACKGROUND

Agriculture is the backbone of INDIA. In the olden days , our ancestral had a satisfaction in cultivating their own crops. Now a days , in the busy world the people runing behind the artificial world, to sought out this issue our crops monitoring system will help them to grow naturally, live naturally.

# STATEMENT OF THE PROBLEM

Malnutrition denotes impairment of health arising either from deficiency or excess or imbalance of nutrients in the body. We need 0.8g of protein per kilogram of our body weight and it keeps immune system strong. The individuals may not attain the daily consumption this may leads to major health defect in an individuals..Indeed, in today’s fast-food environment, the adequacy of individual’s diets is questionable, perhaps because of the potential inadequacy of essential nutrients in individual’s diets, the use of nutritional supplementation is often examined.

**3 OBJECTIVES**

The sensor DHT 11 is used to monitor the temperature and humidity of the closed system .The temperature maintained in the system is around (70- 80 F) and the humidity level is around (30- 40 %) in a closed environment.

The chamber is constructed as covered steel chamber with thermocol bended layer with proper air circulation. The data which are collected from the system are send to cloud (Thinks speaks).

Sprouting of cereals is the process where it enrich the protein content in the cereals .

Basically sprouting needs some specific parameters such as temperature and humidity.

Sprout monitoring system can be able to maintain specific parameters and to enrich the protein in cereals .Temperature and humidity are used to monitoring the cereals for better production of protein. Grains are rich in protein and fibre content when the grains start to sprout the fibres content get reduced and the protein content is enriched .

# 4 TECHNOLOGY GAP

In early days, the grains are first rinsed to remove soil, dirt and the **mucilaginous** substances produced by some grains when they come in contact with water. Then they are soaked for 20 minutes to 12 hours, depending on the type and size of grains. The soaking increases the water content in the grains and brings them out of  **quiescence**. After draining and then rinsing grains at regular intervals they **germinate**, or sprout.In this case, if the moisture content is increased, the cereals gets spoiled and produces foul smell and if the temperature gets increased the cereals may stop the sprouts.

**5 DELIVERABLES**

This system is proposed to maintain a proper water consumption method, which reduces the man power in order to increase the efficiency of the system.

The spoilage of sprouts are much reduced in this system and also it can be carry easily to our desire destination.

And also the system is proposed as eco-friendly and cost efficient.

# 6 RESOURCES AND BUDGET

For the crop / food producing sector, Perrin noted, these basic resources include **land, water, and natural resources and critical factors such as climate and ecological resilience**. In agriculture, **cost of seed, manure's and fertilizers, irrigation** are the variable costs. The sum of fixed costs and variable costs forms the 'total cost', when the total expenditure is deducted from the total returns (income), one gets the 'net profit' In this monitoring system consist of software development which is IoT based& components like servo motor ,Arduino UNO ,Motor drive , IR sensor. Overall is a cost efficient and avail for all the people of our country.

Here the cost structure is :

Arduino board - 649 /-

Motor drive - 199 /-

IR sensor - 31/-

Water pump motor – 64/-

Jumper wire – 115/-

LED – 36 /-

Outer coverings – 500/-

# 7 PROJECT PLAN WITH MILESTONES

| Sr. No. | Milestone | Target Date | Remarks |
| --- | --- | --- | --- |
| 1 | Choosing the type of grains | 15days | Finalized |
| 2 | Implementing our system under surveillance to care the crops until success status reached | 1 month | Successfully got output |
| 3 | Fabricating the final system design | 5 days | Exact design implemented |
| 4 | Real life practice | 10 days | Successfully worked |

# 8 CATEGORY OF NEW TECHNOLOGY/PRODUCT

| Sr. No. | Category | Details |
| --- | --- | --- |
| 1 | New-to-the-world Products/Technology | ------- |
| 2 | New-to-the-firm Products/Technology (new Product Lines) | Crop monitoring system is come under new to firm of the existing technology |
| 3 | Additions to existing Product Lines | ----------- |
| 4 | Improvements and Revisions to existing Products | In early days the process called mucilaginous, quiescence, germinate in order to avoid so many manual process and time. our Current products made better for the human use . |
| 5 | Repositioning | It repositions human work and time and also help them to care lot about their health .compare to early days it monitor the crops help to grow in sufficient manner without affecting by any external factors . |
| 6 | Cost Reductions | Finally, it is a cost efficient product in order to implement healthy green INDIA . we focus more about marketing this product to all group of people .compare to the existing product is far easy to buy and use . |