PROJECT DESIGN : Solution Fit Template
PHASE - 1

TEAM ID : PNT2022TMID35844

PROJECT TITLE : IoT Based Smart Crop Protection System for Agriculture

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

WHO IS OUR CUSTOMER ?

- AGRICULTURISTS
- PEOPLE WHO ARE RESIDING AT A LONG DISTANCE FROM THEIR CULTIVATION AREA
- FARM OWNERS

6. CUSTOMER CONSTRAINTS CC

WHAT CONSTRAINTS PREVENT OUR CUSTOMERS FROM TAKING ACTION OR LIMIT THEIR CHOICES OF SOLUTIONS ?

- LACK OF AWARENESS
- HIGH BUDGET
- NO PROPER MARKETING REGARDING EXISTENCE OF THE PRODUCT
- FEAR OF COMPLETE RELIANCE ON MACHINE

5. AVAILABLE SOLUTIONS AS

- Providing control over periodic watering of crops using application.
- Supervision of soil moisture content, temperature and humidity values near the cultivation field.
- Providing solution to the destruction of crops by animals using image processing.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. PROBLEMS

- According to previous research in crop's security, developing countries, which are using traditional storage facilities for staple food crops, can't protect them, leading to 20- 30% loss of agricultural products such as rice, corn etc.
- Currently available solutions targets only insects, pests and grain pathogens. While other study states 5 to 10% loss in rice crops on average, in Asia is due to damage caused by rodents
- These rodent impacts are also associated with the debilitating rodent borne diseases. As in Asian and Pacific countries death rate due to rodent borne diseases is higher in comparison with some illness such as HIV-AIDS

9. PROBLEM ROOT CAUSE

- Low productivity of crops is one of the main problems faced by the farmers in our country.
- Crops destroyed by wild animals and because of bad weather condition.
- Insufficient watering.
- Over watering of crops.
- Supervision of crops on their health condition is improper

7. BEHAVIOUR

- System feedback regarding field status should be immediate.
- The values read by the system sensors should be accurate.
- The system should be trained with large training datasets.
- Quick system response towards any abnormal condition should be

Identify strong TR & EM

3. TRIGGERS TR

- Reading about technological advancements through magazines and social media.
- Food scarcity and financial losses.
- Huge time consumption on crop supervision.
- Labour requirement

4. EMOTIONS: BEFORE / AFTER EM

BEFORE :

- Low productivity.
- Fear of destruction of crops by wild animals.
- Supervision of crops was hectic.
- High requirement of human resources.
- Fear of financial losses

AFTER :

- Increased crop productivity
- Crop Security
- Supervision of crop was easier
- Low necessity of human resources
- High profit due to high productivity

10. YOUR SOLUTION SL

- A device to detect the animals and birds using the Clarifai service
- If any animal or bird is detected the image will be captured and stored in the IBM Cloud object storage.
- It also generates an alarm and avoid animals from destroying the crop.
- The image URL will be stored in the IBM Cloudant DB service
- The device will also monitor the soil moisture levels, temperature, and humidity values and send them to the IBM IoT Platform.
- The image will be retrieved from Object storage and displayed in the web application.
- A web application is developed to visualise the soil moisture, temperature, and humidity values.
- Users can also control the motors through web applications

8. CHANNELS OF BEHAVIOUR CH

8.1 ONLINE

- Queries can be posted regarding the controlling of the system in the official website.
- Chatbot customer service.
- Report complaints online on any malfunctioning of the system.

8.2 OFFLINE

- Periodic surveys regarding the condition/working of the system.
- Postal services to take action against written queries and suggestions.
- Service centres in possible locations for customer satisfaction.
- Manuals in all languages to guide the users with operating steps.

Identify strong TR & EM