**Kickoff Meeting**

**Agenda**

Project Name - Smart Agriculture system based on IoT - SB52681

Kickoff Date - 06/06/2020

**TEAM MEMBERS**

Rachit Upadhyay

**WHAT WE HAVE TODAY**

In areas where rain doesn’t come regularly or when growing water-hungry crops, farmers are forced to get creative. Irrigation uses groundwater, surface water, and water delivered directly to farms to hydrate thirsty plants.

Evapotranspiration and wind are issues farmers face when trying to get water to plants while avoiding waste. General access to water and a diminished supply are also struggles for farmers in many parts of the country.

There are multiple ways to irrigate. Research has backed numerous effective application strategies, but each farmer has their own preference and budget.

DRIP IRRIGATION: WATER TO THE ROOTS

One approach to getting plants the moisture they need is by sending water directly to the roots with a drip irrigation system or a subsurface drip irrigation system. A drip system is made up of hoses with holes throughout that pump water directly to plant roots within the soil. While this irrigation method is more expensive, farmers see a reduction in water applied. Drip can also be beneficial to oddly shaped or sloped fields.

Today, precision mobile drip irrigation (PMDI) exists, which is essentially a hybrid of drip and center pivot irrigation. PMDI uses drip hoses on a center pivot system, rather than nozzle heads, to get water to plants without getting wheel tracks wet or investing entirely in a drip system.

CENTER PIVOT IRRIGATION

This method of irrigating involves long steel arms and sprinkler nozzles and pivots, usually electrically, around a center base to reach the entire field.

When it comes to fertigation, the farmers manage injections themselves, but *having remote control* has helped the family dedicate more time to field scouting and nutrient management.

**WHY WE NEED TO CHANGE**

In the United States, outdoor water uses alone averages more than 9 billion gallons of water each day, mainly for landscape irrigation. As much as 50% of this water is wasted due to overwatering caused by inefficiencies in traditional irrigation methods and systems. Smart irrigation technology is the answer.

Smart irrigation systems tailor watering schedules and run times automatically to meet specific landscape needs. These controllers significantly improve outdoor water use efficiencies.

Unlike traditional irrigation controllers that operate on a preset programmed schedule and timers, smart irrigation controllers monitor weather, soil conditions, evaporation and plant water use to automatically adjust the watering schedule to actual conditions of the site.

For example, as outdoor temperatures increase or rainfall decreases, smart irrigation controllers consider on site-specific variables, such as soil type, sprinklers’ application rate, etc. to adjust the watering run times or schedules. There are several options for smart irrigation controllers.

**WHAT ARE THE KEY MEASURES OF SUCCESS?**

The key objective of the paper is to monitor the soil’s moisture content during its dry and wet

conditions with the aid of a moisture sensor circuit, calculate the corresponding relative humidity

and irrigate it based on its nature using a PC based IOT and GSM system and an automatic water inlet setup which can also monitor and record temperature, humidity and sunlight, which is constantly modified and can be controlled in future to optimize these resources

so that the plant growth and yield is maximized.

A record of soil moisture, temperature, rainfall is maintained in a database for backup. This

backup is used for weather forecasting and directs the farmers regarding the type of crop to be

cultivated in future. IOT gives the whole information to the operator about the irrigation. In this

paper, we experiment for different soils suitable for different crops in various climatic parameters

that govern plant growth and allow information to be collected at high frequency and with less

labor requirements.

**WHO ARE THE KEY STAKEHOLDERS - SPONSOR AND/OR OTHER DECISION MAKERS WHO REPRESENT CONSTITUENCIES THAT WILL BE IMPACTED, AND WHOSE SUPPORT IS CRITICAL TO THE SUCCESS OF THE PROJECT?**

A Ward’s linkage cluster analysis was used to cluster participants into homogenous segments based on their responses. Four distinct clusters were identified and titled as proactive consumers (22%), price-sensitive environmentalists (31%), content retirees (31%), and high-end professionals (16%; Figure 4).

Proactive consumers were knowledgeable about irrigation-related topics and wanted more information about water usage. This cluster was the most considerate with regards to future consequences of their actions but was not very environmentally conscious.

Price-sensitive environmentalists were the least knowledgeable about irrigation-related topics. However, their behavior can be influenced by education information, they consider future consequences, and they are environmentally conscious.

Content retirees were fairly knowledgeable about irritation-related topics, but they were less worried about the future consequences of their actions or the environment.

Unlike the other clusters, the high-end professionals were not strongly impacted by future consequences or environmental factors.

**OBJECTIVES**

Here we are using the Online IoT simulator for getting the Temperature, Humidity and Soil Moisture values.

Based on all the parameters the farmer can water his crop by controlling the motors using the mobile application.

Even if the farmer is not present near his crop, he can water his crop by controlling the motors using the mobile application from anywhere.

**DELIVERABLES**

Farmer is provided a mobile app using which he can monitor the temperature, humidity and soil moisture parameters along with weather forecasting details.

**ASSUMPTION**

Farmer has to have access to internet connection of moderate speed. Preferably GSM or more.

Farmer should have access to electricity 24x7.

**FREQUENCY OF TEAM MEETINGS**

If possible, a meeting with the project manager/mentor each Saturday.