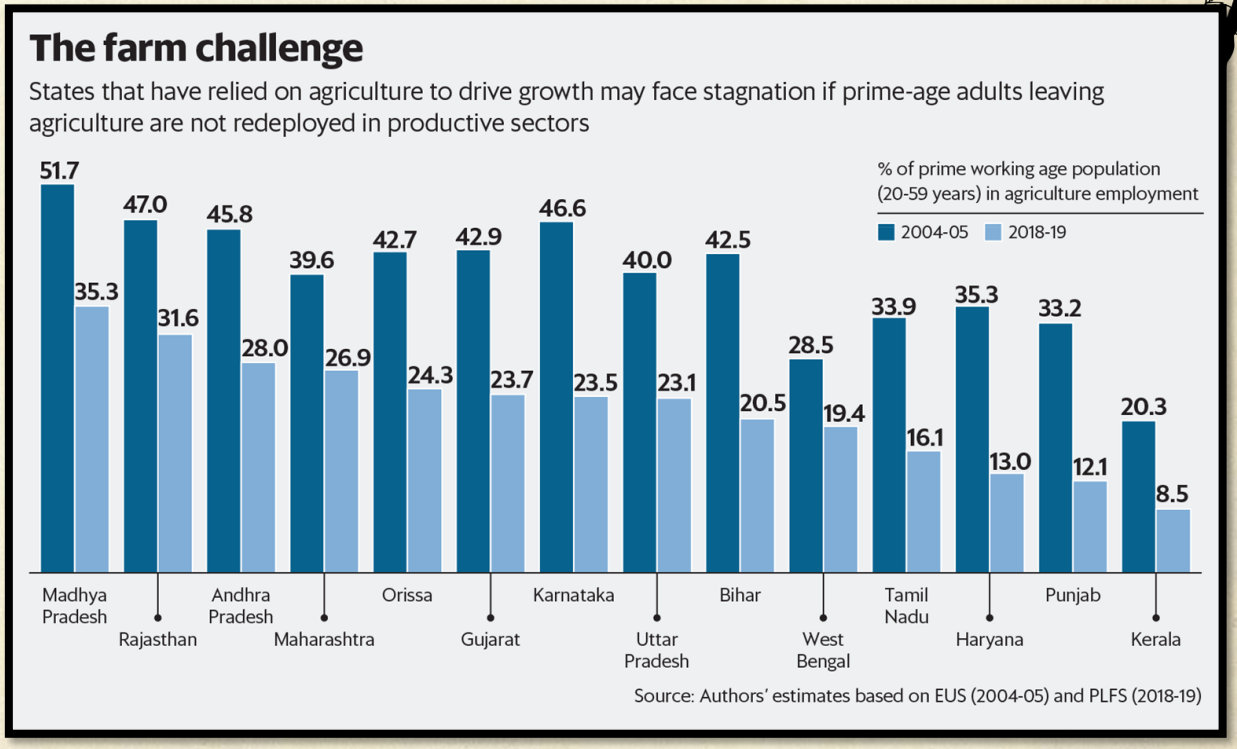
Problem Statements

Labour Shortage

- There's an acute shortage of agricultural labour in our country.
- Also, it has become quite expensive for farmers to hire this labour.



Problem Statement

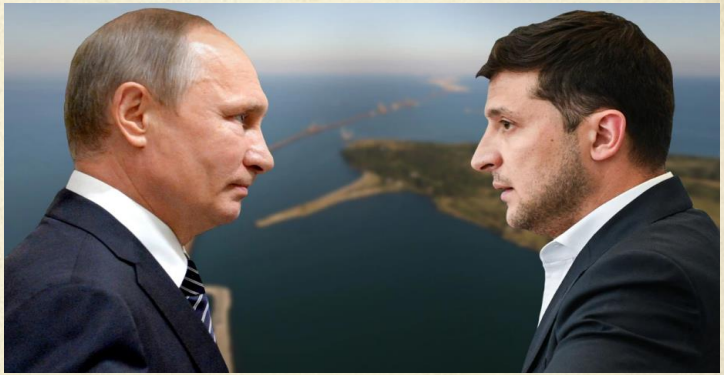
Water scarcity

- Water scarcity in India is an ongoing Water crises that affects millions of farmers every year.

Problem Statement

Fertilizer shortage

- India is a large importer of DAP(Diammonium phosphate).
- There is global fertilizer shortage because of ukraine-russia conflict.
- India is the one of the largest importers of fertilizers majorly importing from Russia and Egypt.



FarmVision

Data-Driven farming: Maximize efficiency, minimize waste

CO 0238

SUGARCANE

Key stages of growth:
Tillering phase(0-15)
Grand growth phase(130-250)

Irrigation requirement:
250 tons water for 1 ton sugarcane.
1-2 inches of water a week to maintain soil moisture

Fertigation:
275:15:112.5 per ha

Karan Narendra

(DBW 222)

WHEAT

Rabi Crop
Moderate temperature- 15-24 celcius

Irrigation requirement:
4-6 irrigations
Irrigation is important in the crucial stages

Fertigation:
80:40:40 of NPK
Basal application and in crown root initiation stage.

Farm Vision

Automatic Irrigation

Irrigating the field based on soil moisture content.

Remote Fertigation

Remotely control when to fertigate your farmland.

Complete Farm Data

Information about all the farm conditions at your fingertips

How does it work?

Collecting Data

Sensors collect the data from the field and send the data to the microcontroller.

Processing Data

Collected data from the sensors and processed. It is then compared against the data in the database.

Responding to the data

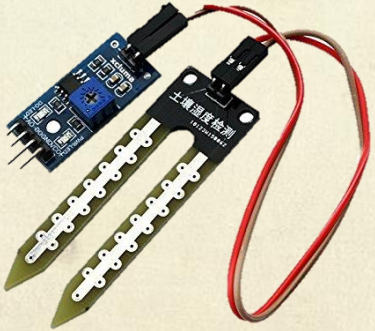
Based on the data, action is taken in the field.

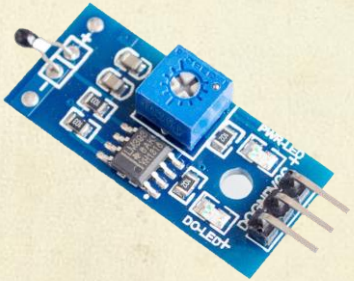
It’s easy to setup.

Our system works along with any existing irrigation setup in the field be it canal, drip or sprinkler.

Modular System, Plug and Play

- The system is modular, i.e, the system can be scaled up or scaled down to suit any farm size.
- The individual components can be plugged in as and when required.
- Even if the sensors get damaged, the farmer himself can just swap them out.



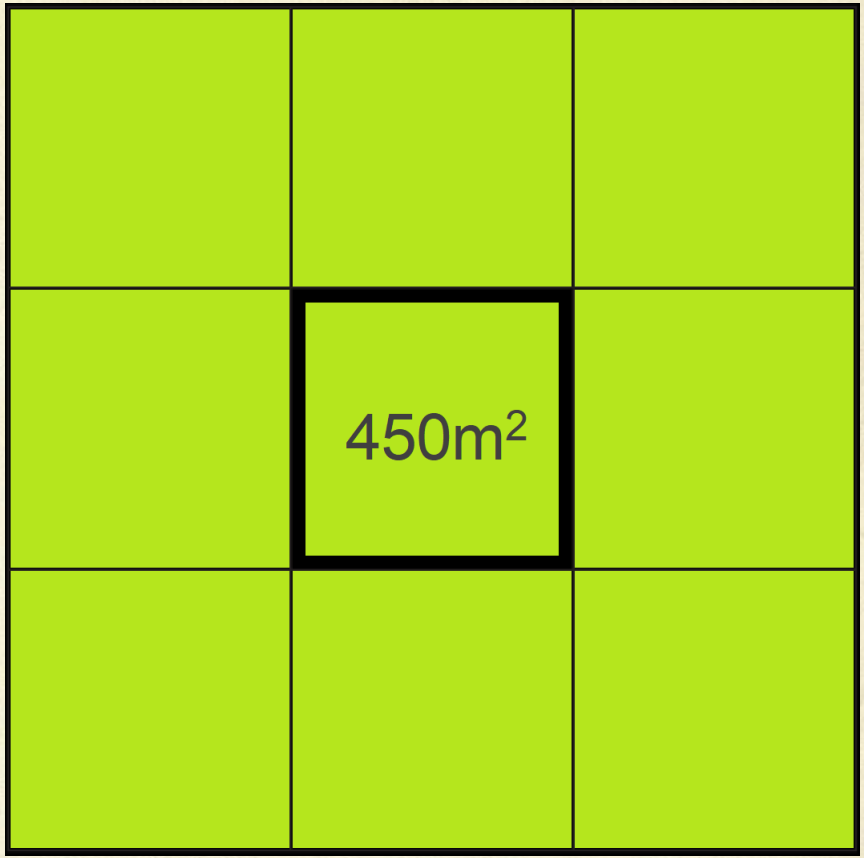


We divided the farm into subsections.

This is to facilitate efficient data collection and transmission.

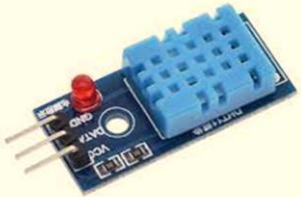
A unit would approximately be 450m^2 in area.

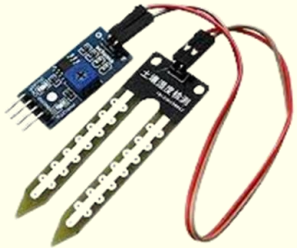
So, 1 hectare would consist of 22 sub-units.

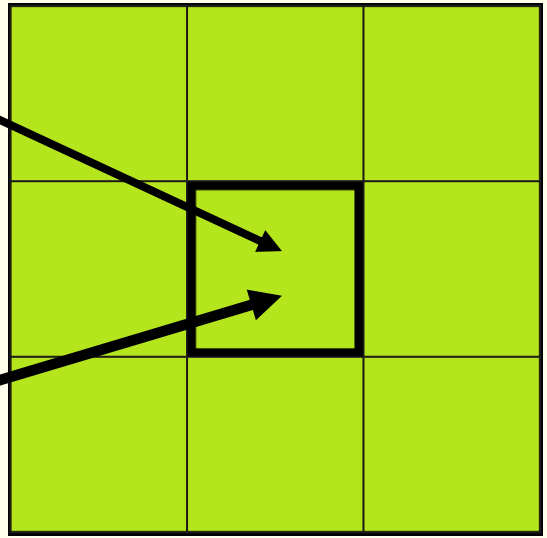


Sensors

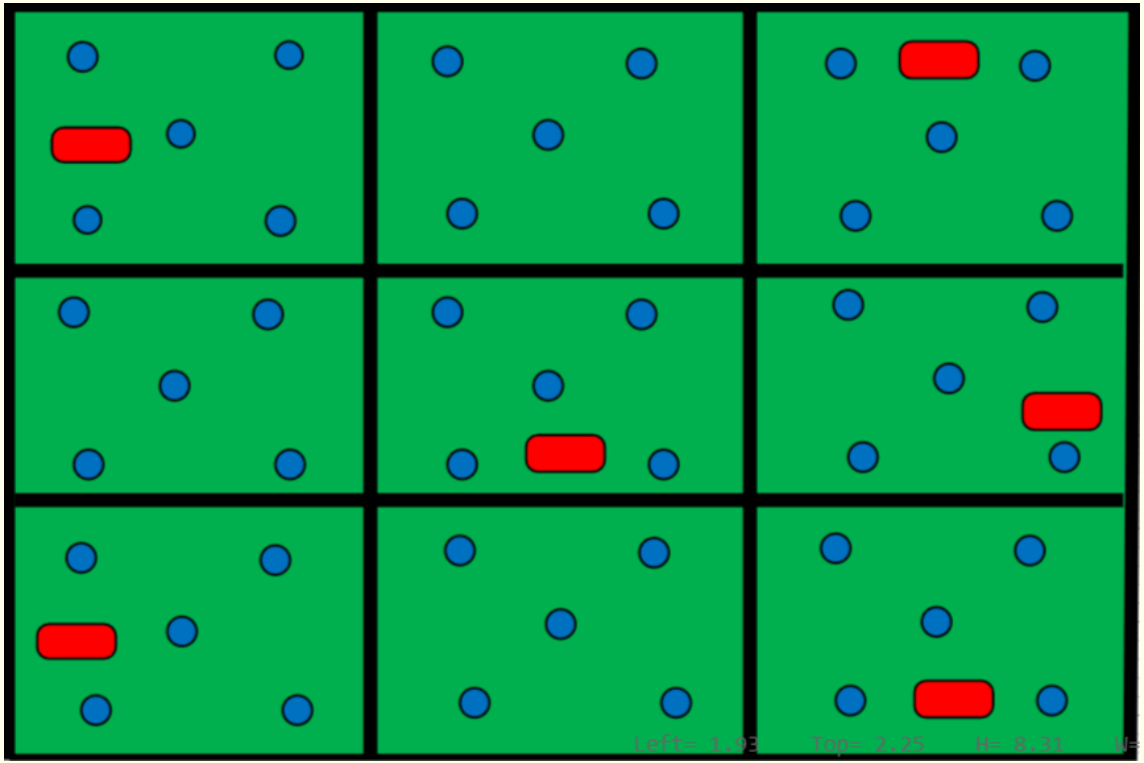
Splitting the farm into grids and placing the required sensors in each unit.







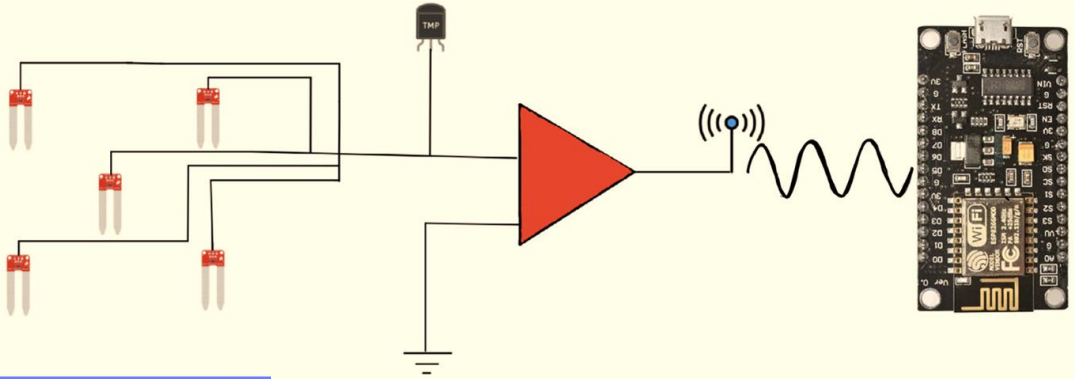
Grid system

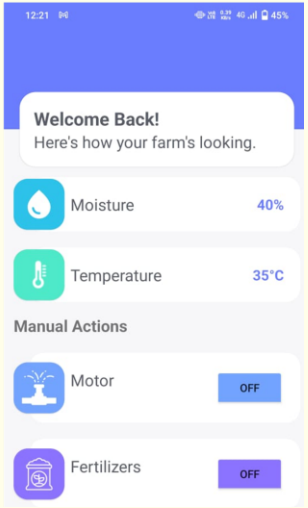


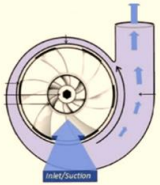
Temperature and Humidity Sensor

Soil moisture Sensor

Model flow


TMP


12:21
45%
Welcome Back!
Here's how your farm's looking.
Moisture
40%
Temperature
35°C
Manual Actions
Motor
OFF
Fertilizers
OFF


Inlet/Suction

Gathering the data at microcontroller

Data from each unit is sent to the control center through an FM transmitter

MOISTURE SENSOR

TRANSMITER

MICROCONTROLLER

Data Processing and further action

The data is compared against the data we have for the crop and appropriate action is taken.

Database

Control Center

Motor

How is the data processed?

Data regarding the optimal farm conditions required for the growth of the crop is stored in the database. Such datasets are publicly available on the internet from reputed sources such as TNAU. We use this data and the data we obtain from the field to take appropriate action.

Given below is the Nutrient requirement of Sugarcane:

** Apply Mahadhan City Compost @ 500 to 800 Kg per acre at the time of land preparation

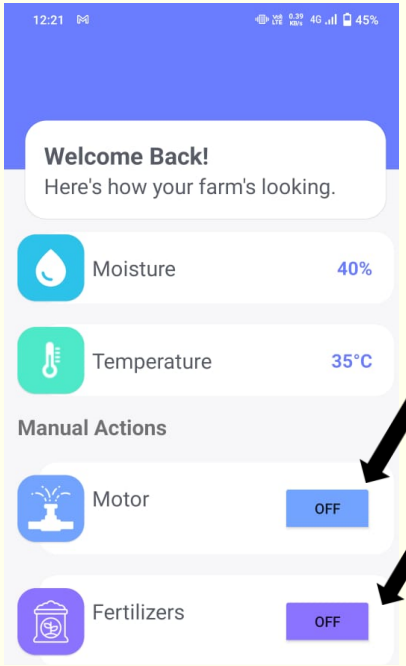
Crop Nutrition Management	Fertilizer quantity to be applied (kg/acre)											
Fertilizers	At the time of Planting			6-8 Weeks After Planting			12-14 Weeks After Planting			Earthing Up		
	Pre-Seasonal	Adsali	Suru/Ratoon	Pre-Seasonal	Adsali	Suru/Ratoon	Pre-Seasonal	Adsali	Suru/Ratoon	Pre-Seasonal	Adsali	Suru/Ratoon
Mahadhan 10:26:26	130	130	90							130	130	87
Urea	40	60	60	118	140	40	30	40	20	52	50	60
Mahadhan Bensulf	8	8	8							8	8	8
Mahadhan MagSulf	20	20	20							20	20	20
Mahadhan Kranti Ferrous Sulf	6	6	6							4	4	4
Mahadhan Kranti ZinkSulf	4	4	4							4	4	4
Mahadhan Tez- Boron(DBT)	1	1	1							1	1	1
Mn SO4	6	6	6							4	4	4
CuSO4	2.6	2.6	2.6							2.4	2.4	2.4
Sodium Molybdet	1	1	1									

Note: Instead of application of Secondary and Micronutrient seperately, Mahadhan Total can be applied at the time of planting and Earthing up 65 Kg/Acre.

Source: https://agritech.tnau.ac.inl

Data at Farmer's fingertips.

The data is also made available to the farmer through an app, so that the farmer can take action if required.



Turn on the motor manually if any need arises.

Start fertigation when needed.

Why FarmVision?

Value proposition (Business Model Canvas)

Key Partners

- FPO
- Arduino
- Fertilizer Company

Key Activities

- Automation of irrigation
- Automation of fertigation
- Resource management

Key Resources

- Sensors
- Arduino microcontroller
- Transmission technology

Value Propositions

- Eliminating need for labour during irrigation
- Increase in yield
- Convenience for the farmer

Customer Relationships

Channels

Customer Segments

- Small scale farmers
- Medium scale farmers

Cost Structure

Revenue Streams

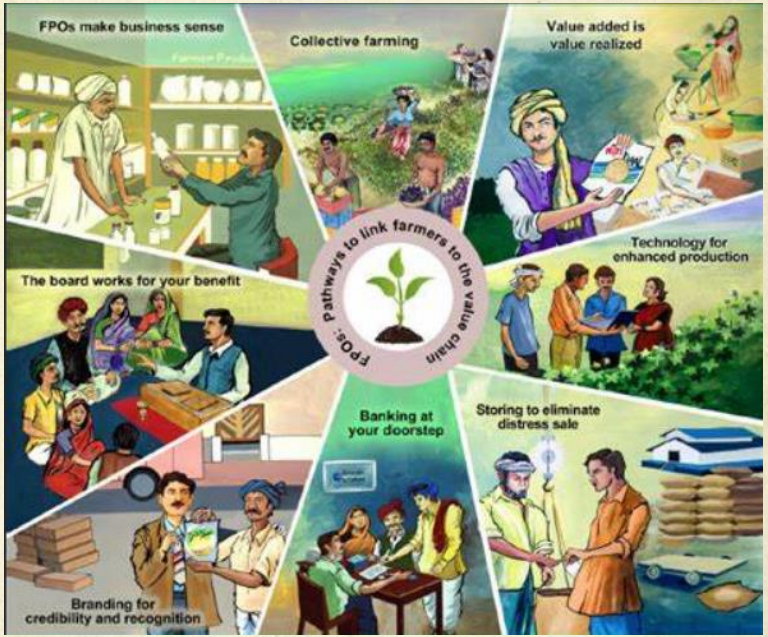
- Selling directly to consumer
- Annual Subscription

FPO

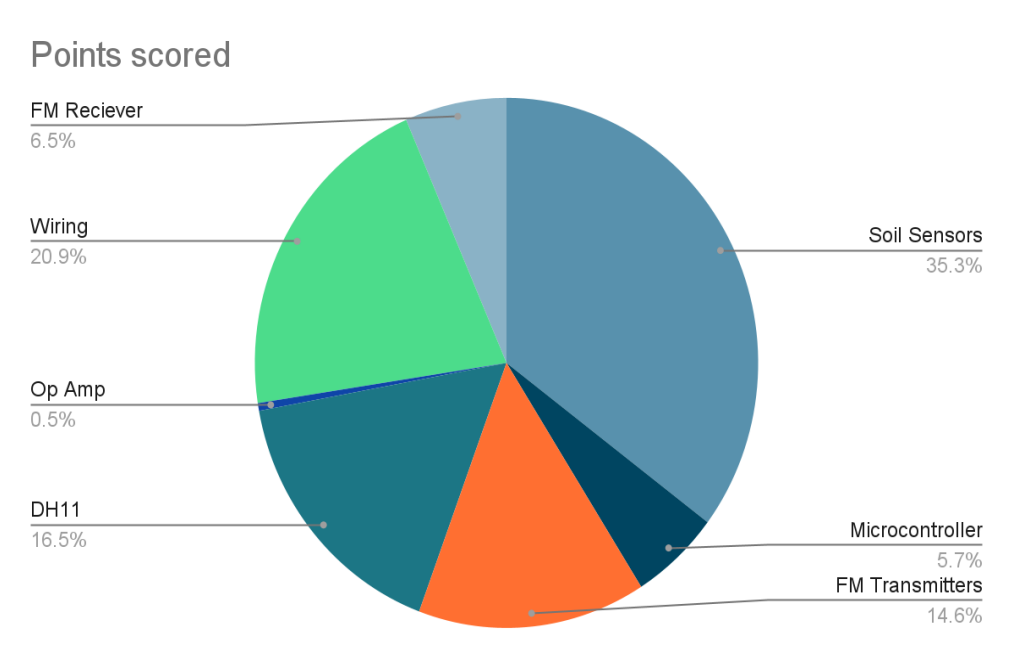
What is an FPO?

FPO stands for farmer producer organizations
A minimum of 300 farmers makes a FPO

- Chittoor district alone has 70+ FPOs
- This gives us a consumer base of at least 50,000 farmers.
- Hence FPOs facilitate in the promotion of our product.



Cost Breakdown



Components	Cost
Soil Sensors	1350
Microcontroller	220
FM Transmitters	560
DH11	630
Op Amp	18
Wiring	800
FM Receiver	250
Total	**3800**
Distributor Cost	**4700**
MRP	**5500**

Profit Margins

- Our gross profit margin would be around 25% per unit sold.
- We estimate our net profit to be in the range of 5-10%.
- And initially we don’t expect to make any profit but as we scale we intend on fabricating our own components which will give us higher profits since we have more proprietary parts hence there is no wastage of excess functionality of the components.

THANK YOU!