Basic Details of the Team and Problem Statement

Team Number: HTxxx

SDG Goal : 2

Zero Hunger and Climate Action goals

Problem Statement Title: Digital Agriculture

Team Name: HACK DREAMERS

HACK@SRET 2022

Idea/Approach Details

Describe your Problem Statement:

➢ Growing effects of climate change influence the agricultural productivity of India, calling for innovative ways to empower farmers to face the threats of climate change.

➢ The project builds farmers' capacity to adapt and respond to climate change and increase agricultural productivity help meet Zero Hunger and Climate Action goals.

➢ Artificial Intelligence Sowing App to support thousands of farmers in a few dozen villages in India.

➢ This will serve as an advisories to participating farmers based on data analysed by artificial intelligence

➢ Focus on when, what and how to plan their vegetation to increase the yield

Idea/Approach Details

Describe your Objectives:

➢ Analyse the historic climate data spanning over 30 years, from 1986 to 2015, to determine the crop-sowing period.

➢ Calculate Moisture Adequacy Index (MAI) from the daily rainfall recorded and reported by the Tamil Nadu Development Planning Society.

➢ Build predictability, and guide farmers to pick the ideal sowing week.

➢ Times to sow depending on weather conditions, soil and other indicators, relieving Indian farmers from inaccurate forecasts.

Idea/Approach Details

Source of Dataset used and its description:

➢ https://tn.data.gov.in/catalog/chennai-district-hand-book-2017-18-climate-and-rainfall#web_catalog_tabs_block_10

➢ http://tawn.tnau.ac.in/General/DistrictWiseSummaryPublicUI.aspx?RW=1
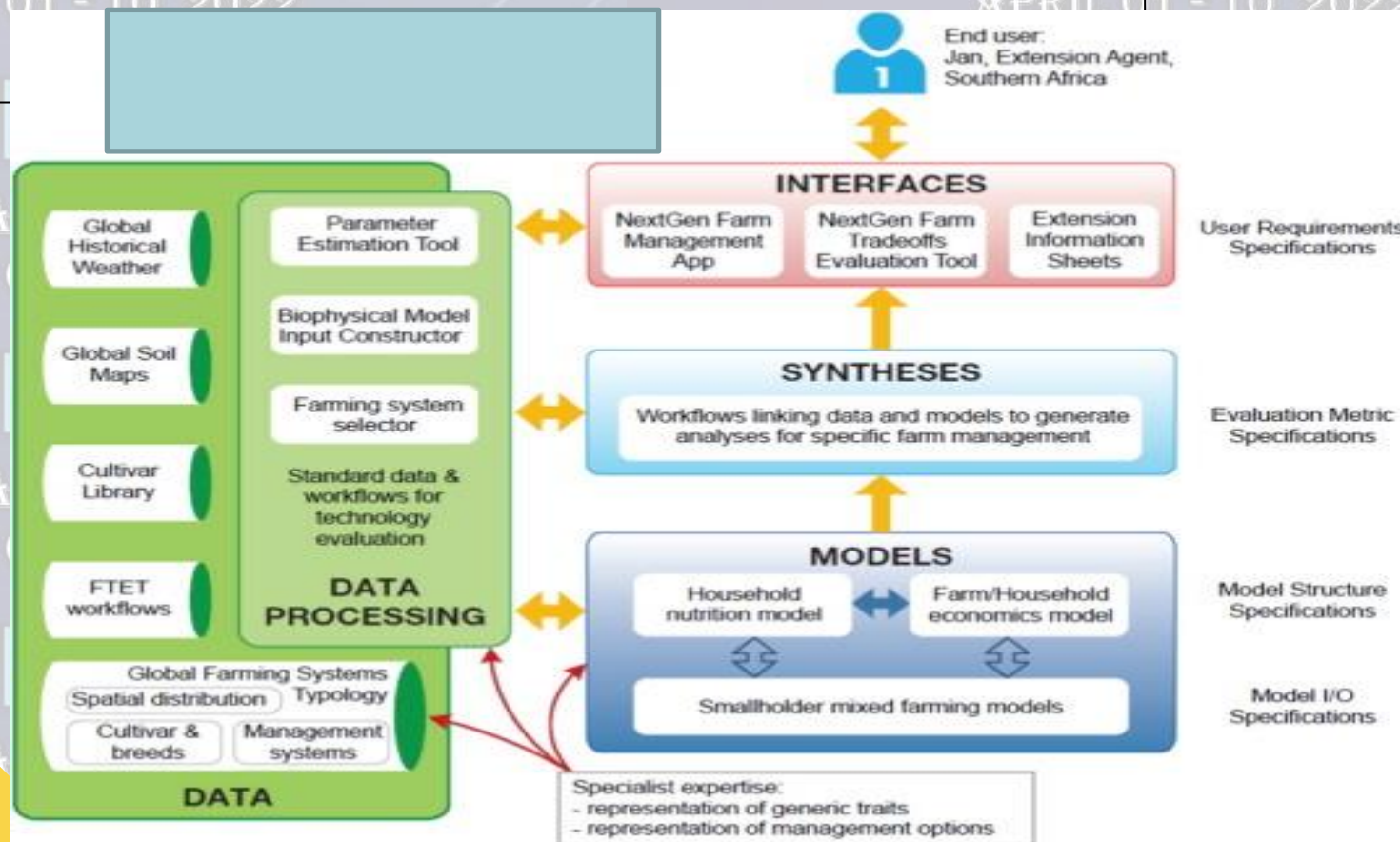
Description:

11 Columns

30000 Rows

Districts	AirTemp.(o C)		Relative Humidity(%)	Wind Speed(Kmph)	Soil Moisture 15cm(%)	Soil Temp. 15cm (o C)	Rainfall (mm)	Solar Radiation (cal/cm2)	Atmospheric Pressure (hpa)	Leaf Wetness(hr)
	Maximum	Minimum								
Ariyalur	- No data retrieved from the Sensor -									
Coimbatore	28.2	23.9	36.0	11.4	36.6	16.6	0.0	355.4	979.0	0.0
Cuddalore	35.1	24.9	71.7	4.1	28.8	32.2	0.0	476.7	994.3	0.2
Dharmapuri	36.6	22.1	58.4	4.1	-NA-	36.4	0.0	-NA-	958.3	18.9
Dindigul	36.9	24.2	57.2	2.9	-NA-	4.4	0.0	388.4	977.4	24.0
Erode	32.3	25.2	66.5	3.8	18.5	-NA-	0.0	474.6	977.0	0.0
Kanchipuram	36.6	24.4	75.6	2.9	39.8	34.9	0.0	480.6	500.0	0.0
Kanyakumari	33.3	24.3	41.6	1.9	25.5	15.7	2.7	284.9	1005.0	6.8
Karur	- No data retrieved from the Sensor -									
Krishnagiri	26.4	22.5	63.0	4.3	9.8	-NA-	0.0	410.0	950.0	0.7
Madurai	-NA-	-NA-	27.6	4.2	23.9	36.3	0.0	385.5	931.7	0.4
Nagapattinam	36.3	24.2	75.5	3.9	35.1	31.6	0.0	568.4	998.1	0.0
Namakkal	- No data retrieved from the Sensor -									
Perambalur	- No data retrieved from the Sensor -									
Pudukkottai	33.7	28.6	64.6	2.9	22.8	38.4	0.0	498.6	895.9	1.0
Ramanathapuram	35.6	25.3	71.7	3.4	9.8	36.2	0.0	324.2	1010.7	7.9
Salem	30.7	23.2	62.7	3.5	17.8	34.7	0.0	443.0	942.5	0.7
Sivaganga	29.2	26.9	65.9	4.6	9.0	33.8	0.0	360.3	1000.4	0.0
Thanjavur	32.6	25.3	41.5	3.8	13.1	33.1	0.0	450.2	1009.1	7.9
The Nilgiris	30.6	19.4	84.8	0.8	30.1	-NA-	0.0	601.6	917.0	0.0
Theni	30.7	21.2	58.4	3.3	31.7	21.5	0.0	572.8	969.1	0.5
Thoothukudi	34.1	25.6	77.4	3.1	23.5	13.2	5.5	426.6	996.8	0.0
Tiruchirappalli	35.8	24.9	66.8	4.5	36.7	35.3	0.0	539.4	1001.8	0.5
Tirunelveli	33.9	23.9	70.2	2.1	25.3	31.8	1.3	346.7	996.3	3.7
Tiruppur	35.5	22.6	36.7	3.6	13.9	44.5	0.0	-NA-	972.3	0.0
Tiruvallur	34.9	32.0	76.4	4.3	-NA-	0.0	0.0	500.7	1009.0	0.0
Tiruvannamalai	34.6	24.8	67.8	0.0	22.7	34.3	0.0	616.7	978.4	0.0

Idea/Approach Details

Describe your Work flow/ Architecture:

Idea/Approach Details

Tools & Technology used:
- Machine Learning
- Android Studio
- Flask API
- AWS Sagemaker

Idea/Approach Details

Describe your Use Cases here

- ➢ Climatic Rainfall evaluation
- ➢ Crop yield prediction
- ➢ Crop Recommendation System

Describe your Dependencies / Challenges here

- ➢ Collecting and Merging Dataset

Uniqueness of The Solution

Elaborate on the Novelty/Innovativeness of the idea in the chosen problem area.

- The project builds farmers' capacity to adapt and respond to climate change and increase agricultural productivity help meet Zero Hunger and Climate Action goals.

- The One stop solution App to provide real time updates on climatic conditions, thereby help farmers to cultivate seasonal crops and to increase the yield. This will increase the supply based on demand for food thus resulting in a Zero hunger country.

Impact and scalability

1. How easy will it be to adapt the solution specially with regards to meeting the growth and demand in the impacted area? (400 words max)

   - One stop solution for framers to get update on the climatic changes and the nature of crop to be cultivated.
   - In future an IoT based moisture sensor device can be configured with the mobile app which can be used to predict the soil condition and can recommend the nature of crop to be cultivated by the farmers

2.

Demonstration Video

Insert link here to a short 3 minute demonstration video of the working prototype, app, work flow or analytical model

Important Pointers

Please ensure below pointers are met while

➢ Kindly keep the maximum slides limit to 15 SLIDES

➢ All the topics should be utilized for description of your idea

➢ Try to avoid paragraphs and post your idea in points

➢ Keep your explanation precisely and easy to understand

➢ Idea should be unique and novel

➢ Apart from this PPT , SOLUTION must also be submitted

➢ Solution has to be deployed in GitHub

➢ You need to upload the same in the google form. No Word Doc or any other format will be supported

➢ You can delete this slide (Important Pointers) when you upload the details of your idea.