

# Agrotech – Crop prediction using machine learning

**Abstract**—Our problem is fully related to farming which further effects growth of India. Sudden price drop of crop are the major problem for farmers in today's era. The crops, food, plants they sow for us with such a hard-core work they dedicate their whole life to farming but what they get in end a sudden price drop, an unexpected price of their investment. Mob mentally is the main reason behind this price drop . If neighbours are sowing a crop then because of that mob mentally one will also sown the same crop in that season. Which results overproduction of a particular crop which is the main reason of price drop , so to stop overprotectivity of a particular crop is needed to get desired price value of there crop this project is there.

## INTRODUCTION

In our country, agriculture is the principal pillar of the economy. The majority of families are dependent on agriculture. The country's GDP is primarily focused on agriculture. More than half of the land is used for agriculture to meet the needs of the population of the region. It is necessary to modernize agricultural practices to meet the demanding requirements. Our research aims to solve the problem of crop price prediction more effectively to ensure farmers' incomes. The fast fluctuations in crop costs are common within the market. These fluctuations in costs are especially owing to the lack of previous design. This leads to fluctuations in demand and also in the market value of a crop. Once the value rises and farmers suffer from an investment loss after the value decreases, it will lead the crops to be highly-priced, becoming a disadvantage for consumers. Farmers are not aware of the demand within the emerging agricultural economy that is taking place.

Agriculture produce is subjected to various risks, which are not only confined to production risk pertaining to weather, pest but also the demand and supply of various countries, other policy and economic factors. With restricted knowledge to understand and comprehend the information, farmers can incur huge losses by selling their produce in distress. Farmers no longer have to contend with just local markets. They also have to account for competition from the world over. High price volatility has been a major concern in past few years both for farmers and consumers. Higher price volatility has driven the search for reliable and accurate price forecasting techniques for agricultural commodities. The main purpose of price prediction is to help producers manage their price risk and take informed decisions. Machine Learning has proved to be better than the traditional time series method of price prediction, using many linear and non-linear forecasting models.

## I. PROJECT AIM

Agrotech Farming Solution is aiming to solve the major problem of overproduction and provide a good price for the great hardwork done by farmers. This project also includes a prediction feature which helps them to get to know about the right crop / yield to be sown in their fields in any particular season on the basis of condition and quality of soil .

## Review of literature

There is a lot of anxiety among farmers. approximately 80 percent of farmers in India are marginal (less than 1 hectare) or small R (1–2 hectares). There are some existing system or projects are available on git and on many more websites. But as per comparison they are not as much as user friendly as 'Agrotech Farming Solutions' .

## Problem with existing system :

- They have very basic design layout and just only work on predicting the price over the given values of contents of soil and rainfall conditions of a particular area .
- Their user interface is hard to use by a farmer of india .
- As farmers are not able to know about the percentage of each and every type of contents / nutrients present in their soil exactly , so working on is little bit hard for them .
- Time consuming .
- Not approved by government .
- Data voilation may be possible.

## System Analysis

### 3.1 Project Overview :

'Agrotech Farming Solution' is combo of two concepts :

1. Getting estimate amount of crops over registered land using previous year data filtration method and generate an alert for low price .
2. Predicting best crop for particular land piece if farmer (user ) don't get as expected price as they want or the will be below alert line

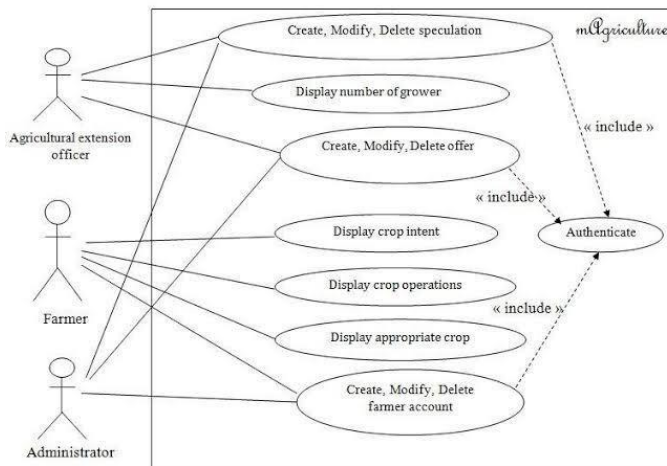
### 3.2 Hardware & Software Requirement :

This project don't need any hardware object or any devices it is fully based on software ,it is a web portal designed by the help of different type of coding languages.

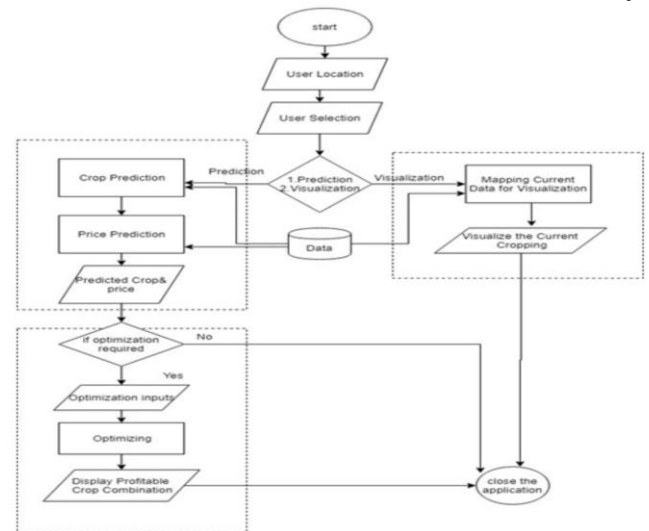
#### Technology used;

- HTML
  - CSS
  - JAVASCRIPT
  - ReactJs
  - MongoDB( Database ,Backend)
  - ML (SVM , Support vector machine algo)
-

### A. Use Case diagram



software or systems



implementation

## Project Benefits:

- Helps to increase economy of country.
- Farmer will get a planned structure of crop cultivation.
- Better and healthy production of crops
- It helps farmer to choose right crop for that season .
- Farmer will get a report of previous crops and its sales .

### • Data Flow Diagrams :

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the router between each destination. Data flowcharts can range from simple, even hand-drawn process overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be used to analyze an existing system or model a new one. Like all the best diagrams and charts, a DFD can often visually “say” things that would be hard to explain in words, and they work for both technical and nontechnical audiences, from developer to CEO. That’s why DFDs remain so popular after all these years. While they work well for data flow software and systems, they are less applicable nowadays to visualizing interactive, real-time or database-oriented

Implementation is the stage of the project when the theoretical design is turned into a working system. The implementation stage is a system project in its own right. It includes careful planning, investigation of current system and its constraints on implementation, design of methods to achieve the changeover, training of the staff in the changeover procedure and evaluation of the changeover method. The first task in implementation is planning deciding on the methods and time scale to be adopted. Once the planning has been completed the major effort is to ensure that the programs in the system are working properly when the staff has been trained. The complete system involving both computer and user can be executed effectively. Thus the clear plans are prepared for the activities. Successful implementation of the new system design is a critical phase in the system life cycle. Implementation means the process of converting a new or a revised system design into an operational one

- Farmer Module:
- Inserting Farmer Details
- Inserting Land Details
- Crop Selection
- Updating farmer detail

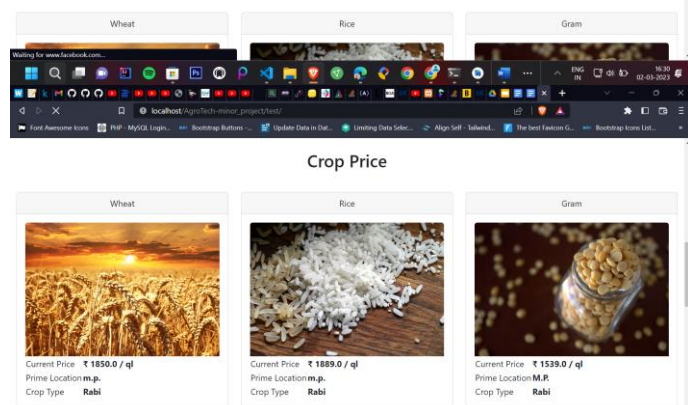
## IMAGES:



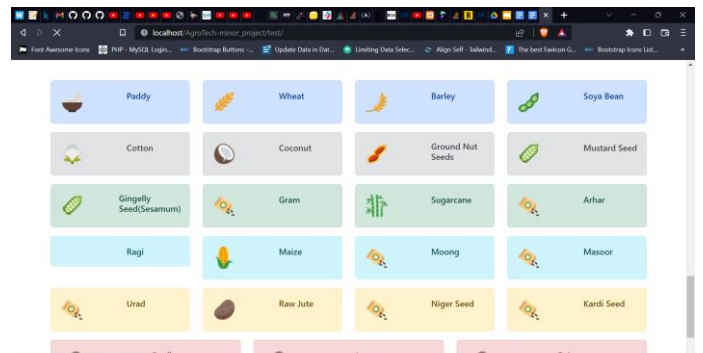
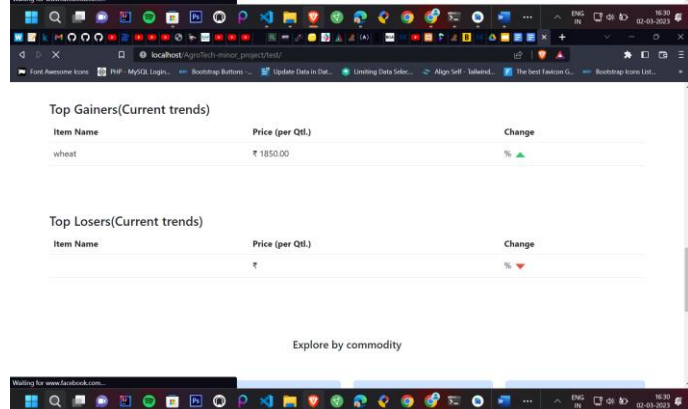
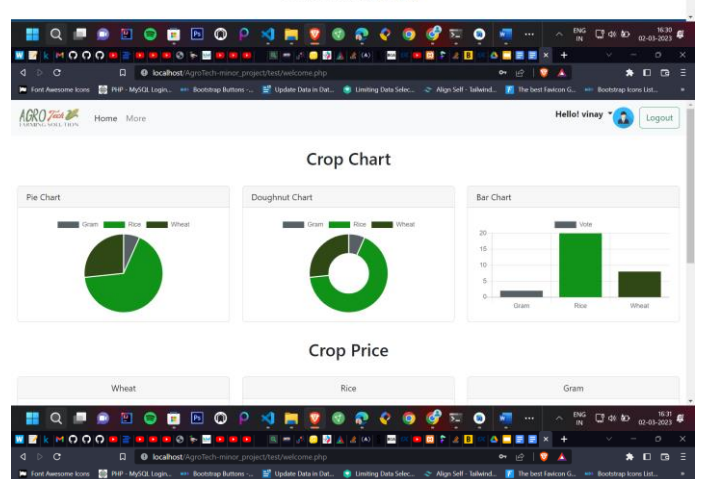
Crop Chart



Crop Price



Crop Price

Crop Price



## Conclusion

Agriculture is the major economic force in India . It has good/ moderate climate throughout the year in most parts of the country . As the country is big, cultivated crops are distributed all over the country, because of that a reasonable market price is remaining as a challenging issue for farmers. To overcome this problem, Agrotech Farmings advice to predict the most profitable crops and its expected price during harvesting time and give estimate amount of crop before sown according to the location, by predicting different historical raw datasets using my sql , different machine learning algorithms like LSTM & RNN, ARIMA, Linear Programming (LP), Gastner Newman Cartogram algorithm .

## References

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