IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

DESIGN AND DEVELOPMENT OF AGRO APP FOR AUTOMATIC FIELD MONITORING AND MARKETING OF CROPS

1K Vaibhavi, 2 Prof. Prashanth k
1Student, 2Assistant Professor
1Departmenet of Master of Computer Applications,
1RV College of Engineering, Bangalore, India

Abstract: Farmers face utter loss when there is a sudden fall-off in price. And without prior knowledge of the market they selling their crops to customers Which leads to financial insecurity in farmer families. There is a lot of manual work involved in farming and farmers find it difficult to get an appropriate number of laborers. This paper provides a solution that Farmer can choose the crop he wants to grow and update the same in the application. Once he updates, the demand for the crop (in acres) will be reduced by the area (in acres) that he registered for that crop. Sensor Technologies are gaining popularity. We use various sensors, microcontrollers, and GSM technology to reduce the labor work in farming. For best practices, youtube links are provided if educators and interested people can suggest about farming, gardening, etc.. in the blog section

Index Terms **– Soil Moisture Sensor, PIR Sensor, GSM for Mobile Communication, Temperature Sensor, Humidity Sensor, Water level Sensor.**

I. INTRODUCTION

The continuously increasing demand for food requires rapid improvement in food production technology. It is very important that farming be made an economically attractive process that youth will get engaged in farming. It will raise the standard of living in rural India. This project reduces the manual work and proper education for youth who are interested in farming. still, farmers are not believing in technologies that's why they are not adopting and implementing any technology for their field because some farmers are uneducated and if students or agricultural officers suggest this technology and give practical knowledge about farming. This Training provides information about crops, fertilizers, and market details that are requested. Online query handlings for all users. Queries can be posted by students, the general public through mails. Queries can be directed to a particular officer. Information pages should be dynamic so that agricultural officers and administrators can change them.

The increase in post-independence agricultural production has been brought about by bringing additional area under cultivation, an extension of irrigation facilities, use of better seeds, better techniques, water management, and plant protection. However slow agricultural growth is a concern for policymakers as some two-thirds of India's people depend on rural employment for a living. Marketing/selling the crops at the right price with average profit is the major problem faced by the farmers as lack of pricing and demand information in the markets. So our project consists of the following SMS-enabled applications for farmers to know the exact price, demand and future predictions in the market before he decides to sell his crops.

When a farmer decides to sell his crops, He can know the demand, current price, and the future trend the crop can take. This data is maintained in a central server by experts and updated daily as market trends. When a farmer sends

SMS to this server about the crop name and place name, the Farmer can receive SMS about detailed pricing and trend information about the crop including predictions of the future. If the farmer feels the current pricing would benefit him with profit, he can go ahead and sell the crops or he can use prediction information and decide to sell the crops in the future.

II. Literature survey:

using some technology author proposed the design and development of agriculture app for educating formers and educated youths to change their focus into agriculture The author proposed, Remote Sensor Networks is an emerging technology with the wide potential to be used in many applications.

The authors develop an application that suggests crops for farmers to meet the demand in the market based on previous years' data, temperature, rainfall, market prices, etc. They use data mining techniques for analysis. They use text to speech conversion technique to provide information to the farmers in their regional language.

In this paper, the author discussed monitoring the field when rodents are entering the field the sensor collects the information, and automatically the buzzer is turned on and the microcontroller process the data and sends data to GSM through GSM it sends SMS to registered mobile number about field information.

Here author discussed without labors how farmer handles their work from home using the app like automatically turn on the water pump using mobile when land is dry for that soil moisture sensor used when the water level is low then farmer get a notification and even he gets information about the temperature and humidity information where a farmer can start farming.

In this paper, the author discussed how to grow crops based on market rate and for best practices watching some youtube videos for how to protect crops educated people can suggest some websites links about farming also gardening information they can share using the blog section.

III. SYSTEM DESIGN

A detailed description of the design and development of agro app for automatic field monitoring and marketing of crops. for crop monitoring module design is based on IoT technology provided by hardware design. Hardware design describes a detailed description of the component. The crop monitoring system mainly contains the components like SST89E516RD2 Microcontroller, ACD, PIR Sensor, water level Sensor, Humidity Sensor, and Temperature Sensor, soil moisture.

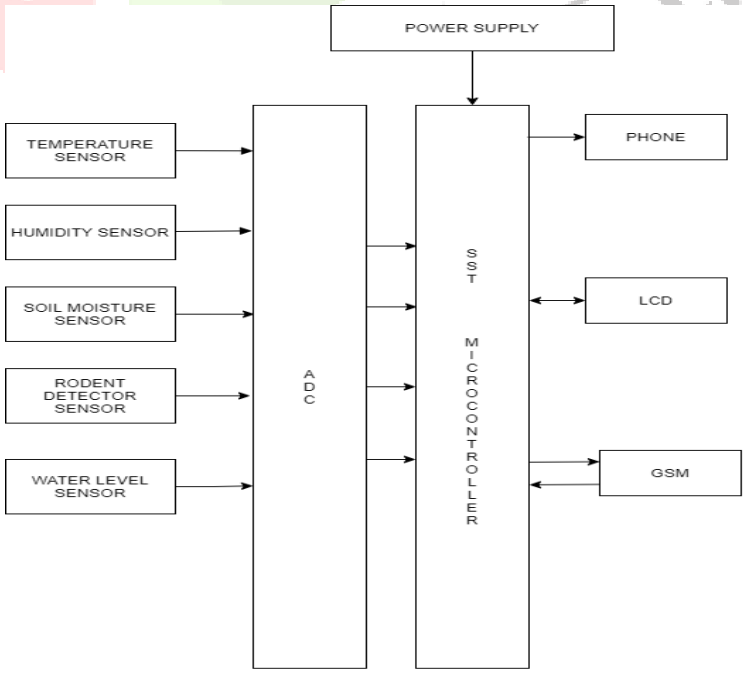

Fig.1. Block diagram of the Feild monitoring module

In the above Fig.1 block diagram consists of microcontroller used to process the data and output of the microcontroller is in two forms, an alert message is displayed on Liquid Crystal Display (LCD), and at the same time alert message is sent to the farmers about field activities using GSM module. And also uses and for converting analog to digital signals and it acts as an intermediate between the microcontroller and other sensors. The microcontroller is used along with GSM to send alert messages to registered phones and all activities of sensor nodes can be controlled by a microcontroller. Working of microcontroller, PIR sensor, temperature sensor, soil moisture sensor, humidity sensor, the water level is explained in these sections.

IV. **PROPOSED SYSTEM**

The proposed framework is divided into two modules.

1. **Field monitoring**

   The monitoring of the field module mainly consists of components such as a microcontroller which acts as the main controller and GSM, ADC, LCD, Sensors are connected to it. The GSM plays a vital role in the field monitoring module by sending alert messages notifications to farmers. Suppose if rodents or any animal enters the field, temperature sensor detects temperature in its environment with Celcius, humidity sensor also calculate the humidity in its environment and soil moisture sensor detects the land is dry or wet, and water level in the soil data also collects and sends this data to microcontroller. The data is processed by a microcontroller and transmits this data to GSM. And it will send an alert message notification to the farmer to take necessary action.

1. **Crop marketing**

   This module is designed using android Marketing/selling the crops at the right price with average profit is the major problem faced by the farmers as lack of pricing and demand information in the markets. So in this module, it describes the first farmer register the crop and according to their acres of the field to know how many tones of crop they can grow then to know the market status about the price of each crop based on that farmers can sell their products with reasonable price, then for best practices farmers or educated also learn watching videos about crops, A Farmer can share his information with other farmers via blogs. These blogs are a part of the android application which farmers use for pre-production and post-production support. The blogs contain a subject or a heading. Farmers can check the details in the blog by clicking on the heading.

V. EVALUATION RESULTS AND DISCUSSION

Fig 2 shows the microcontroller interfaced with sensors and GSM in which that has been developed by researchers to detect the temperature, humidity, rodent detection, and check whether the land is dry or wet in the field.

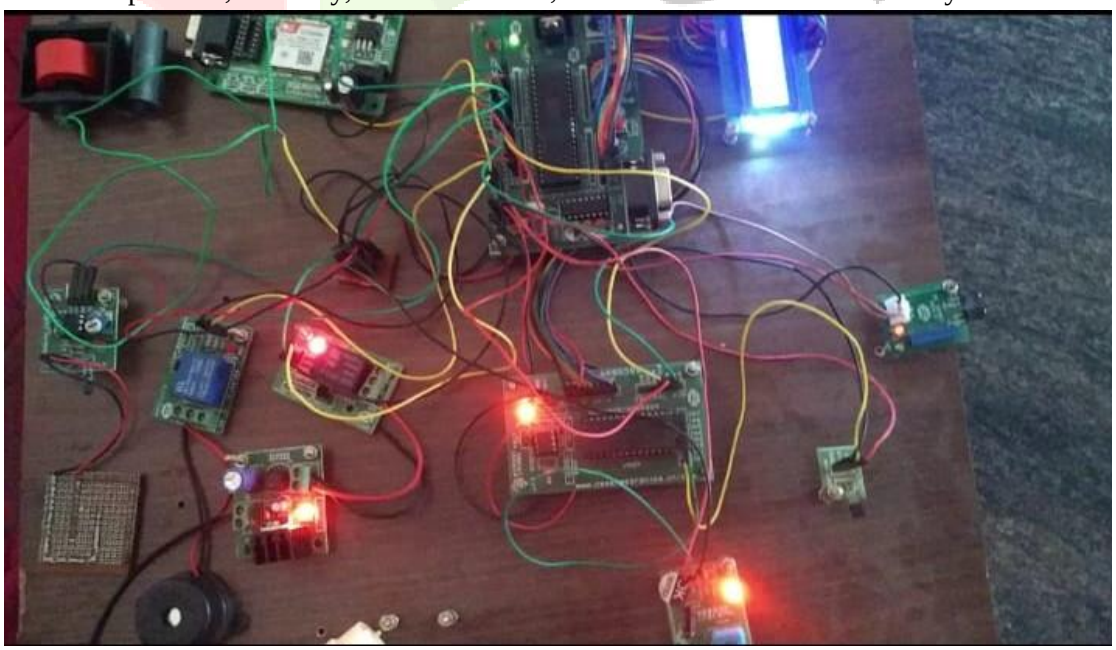

Fig.2. Microcontroller interfaced with sensors and GSM module.

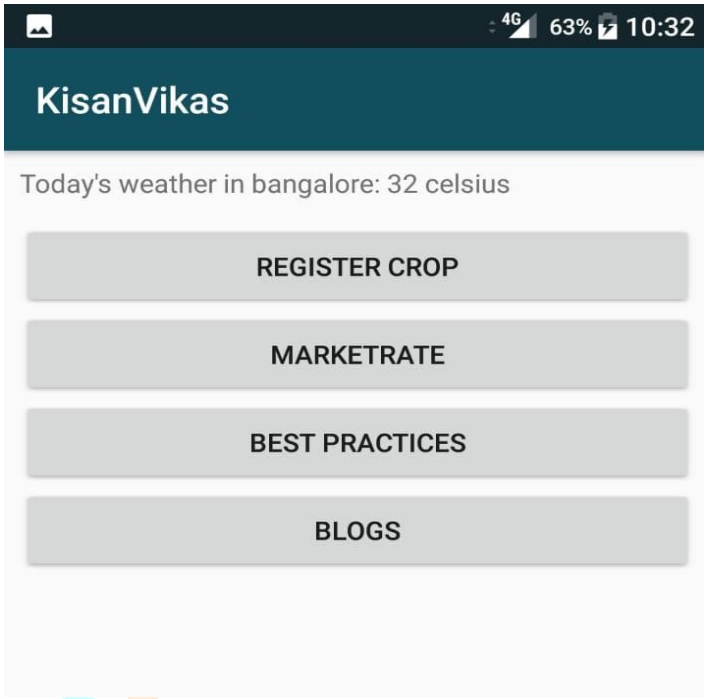

Fig 3. Android application for crop marketing modules

Fig 3 this module helps the farmer to get information about the market and they can share information with other farmers by providing valuable websites link and practical knowledge they can be sent YouTube links also and for a particular area or acres how many tones of crops they can grow.

Fig 3.1 Registering crop by choosing the area

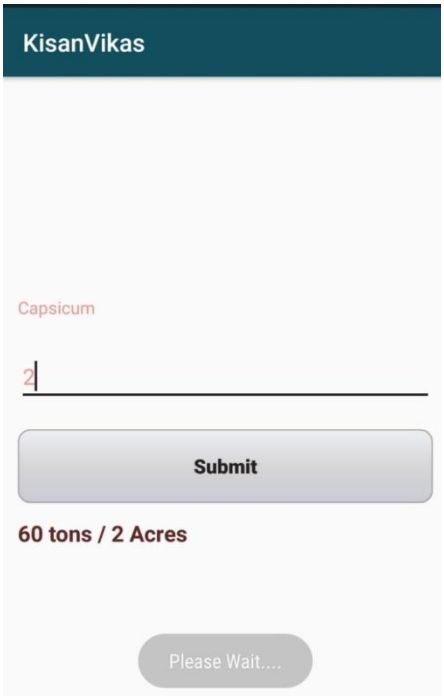

Fig 3.2 Entering acres details for crop

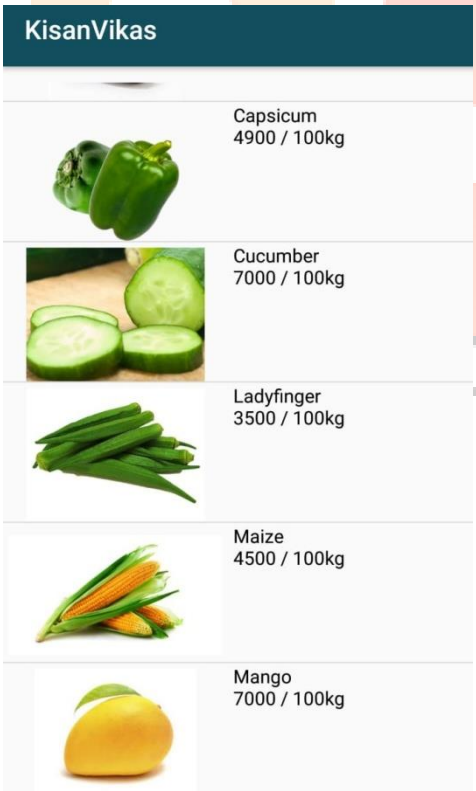

Fig 3.3 Market rates details for each crop

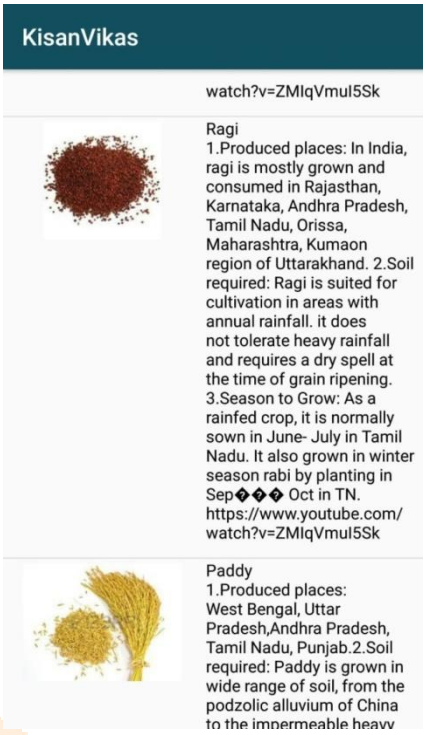

Fig 3.4 Information about crop for best practice

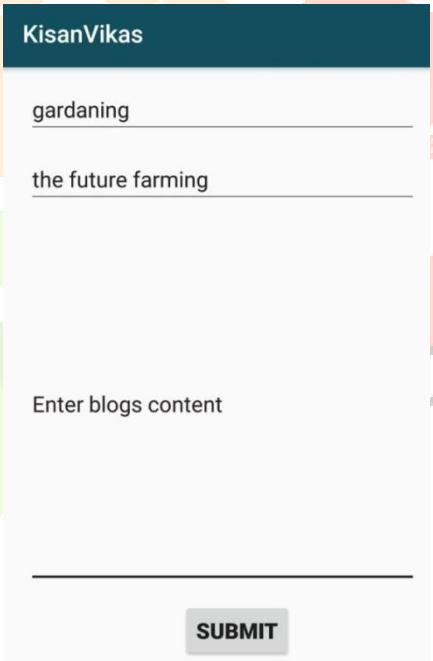

Fig 3.5 Blog for sharing information

REFERENCES

[1]. Yi-Wei Ma, Jiann-Liang Chen, "Toward Intelligent Agriculture Service Platform with LoRa-based Wireless Sensor Network" IEEE International Conference on Applied System Innovation. Year of Publication 2018, ISBN 978-1-5386-4342-6

[3]. Sachin Gajjar, Dilip Kothari, Manisha Upadhyay, and Vandana Dhingra, "FARMNET: Agriculture Support System Using Wireless Sensor and Actuator Network", IEEE WiSPNET 2017 conference, Year of Publication 2017, 978-1-5090-4442-9

[4]. Kangana, Rishi, Sundaresan, Srijit " Demand-Based Crop Recommender System for Farmers" IEEE International Conference on Technological Innovations in ICT For Agriculture and Rural Development". Year of Publication 2017, 978-1-5090-4437-5

[5]. Alaa Abdullah, Shahad Al Enazi, Issam Damaj, "AgriSys: A Smart and Ubiquitous Controlled-Environment Agriculture System", 3rd MEC International Conference on Big Data and Smart City, Year of Publication 2016, 978-1-4673-9584-7

[6]. C. Brewster, I. Roussaki, N. Kalatzis, K. Doolin and K. Ellis, "IoT in Agriculture: Designing a Europe-Wide Large-Scale Pilot, "IEEE Communications Magazine, vol. 55, no. 9, pp. 26-33,2017.

[7]. GAYATHRI R S, "AGRICULTURE PORTAL FOR DECISION MAKING, PLANTATION, AND MARKETING OF CROPS"

[8]. Aakunuri Manjula, G. Narsimha, "XCYPF: A Flexible and Extensible Framework for Agricultural Crop Yield Prediction", IEEE Sponsored 9th ISCO, 2015.

[9]. Rhia Togo, Gerry Bagtasa, Edgardo Tongson, Orlando Balderama "SMS-based Smarter Agriculture Decision Support System for Yellow Corn Farmers in Isabela" 2015 IEEE Canada International Humanitarian Technology Conference (IHTC) 978-1-4799-8963-8/15/$31.00 ©2015 IEEE

[10]. A. A. Raorane, R. V. Kulkarni, "Data Mining: An effective tool for yield estimation in the agricultural sector", IJETTCS, vol. 1, no. 2, pp. 75-79, 2012

[11]. D. Ramesh, B. Vishnu Vardhan, "Analysis Of Crop Yield Prediction Using Data Mining Techniques", 2015

[12]. Jones, J. W., Hoogenboom, G., Porter, C. H., Boote, K. J., Batchelor, W. D., Hunt, L. A., ... & Ritchie, J. T. (2003). The DSSAT cropping system model. European Journal of Agronomy, 18(3), 235-265.