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"Iot Based predication Analysis System for Precision Agriculture"

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Abstract: In India sustainable agriculture development is essential to meet food demands, economic growth and poverty reduction. Climate change having adverse effect on agriculture and traditional practices followed are planting, fertilizing and harvesting against the predetermined schedule. Precision agriculture can be used to mitigate the climate change. The work objective is optimal usage of water in irrigation, proper nutrient management to plant and avoid crop losses due to diseases and pests with proper scheduling of sprays. In this context, we have proposed an agro advisory system for the pomegranate field. Wireless sensor network is deployed on field and will continuously monitoring real time environmental, soil, hydrological and crop specific parameters. Those are important for growth, productivity and quality in agriculture. An agro advisory will be disseminated to the farmers according to real time field conditions . The experimental result analysis of proposed system shows improvement over traditional followed methods.

Keyword: Precision agriculture, optimal usage, agro advisory, quality in agriculture.

I. INTRODUCTION

Climate change having adverse effect on agriculture and traditional practices followed are planting, fertilizing and harvesting against the predetermined schedule. Precision agriculture can be used to mitigate the climate change. The work objective is optimal usage of water in irrigation, proper nutrient management to plant and avoid crop losses due to diseases and pests with proper scheduling of sprays. In this context, we have proposed an agro advisory system for the pomegranate field. Wireless sensor network is deployed on field and will continuously monitoring real time environmental, soil, hydrological and crop specific parameters. Those are important for growth, productivity and quality in agriculture. An agro advisory will be disseminated to the farmers according to real time field conditions message The experimental result analysis of proposed system shows improvement over traditional followed methods. The main contextual data elements of sensor based feedback advisory system include many different types of sensors, such as temperature, humidity, soil moisture, canopy temperature, canopy humidity and wind velocity, placed on the field with data loggers to communicate the observations to the server. Apart from sensor information the farmer uploads information about climatic conditions, soil conditions, rain and fertilization history, and the pesticide and insecticide history. By presenting all this information in the context of the farmer query, the expert can diagnose the problem and promptly provide advice to the farmer in his native language and maybe even using feedback suggestions. The classification and modeling of agricultural events, modeling of the agricultural experiences, and a method to browse through the history of agriculture experiences soil type, crop, crop variety, season, target, and if available fertility status. In the challenges involved in the Developments of decision support system to be used by farmers as end user are presented, however aims to bridge the gap between farmers, agricultural experts, financial institutions, soil testing labs, agriculture market and other agriculture related institutions. We propose a novel experiential computing approach which aims to provide more insights to an expert by capturing, detecting, storing and analyzing the history of various events in agriculture. Each weather station possesses atmospheric, soil and plant parameters monitoring data logger and modem for data storage and transmission; battery to energize all blocks of the weather station and a solar panel based battery charging unit. The sensors that are available with weather station includes temperature, relative humidity, soil moisture, soil temperature, grass temperature, wind direction, wind speed, solar radiation, rain gauge, leaf temperature and leaf wetness, and virtual dew point sensor. The data logger on weather station collects the data from sensors and transmits. Each farmer, seeking the service, is initially required to perform registration by providing the details of the field location, crop, crop type, soil type, petiole analysis reports, and history of irrigation, fertilizer and pesticide application on the field.

II. LITERATURE SURVEY

The late blight disease forecasting protocol, by integrating sensor based mathematical disease forecasting models, with human participatory diagnosis using mobile phone application overlay mKRISHI system. In Smart grid there are four categories of technologies to mention them; sensors and actuators, communication, owner low control and Supervisory Control and Data

Acquisition systems (SCADA). The prediction and analysis of agricultural products market involves vast data, factors and complex computing. State machine replication behavior, virtual synchrony, or other strong, formally specified consistency models, up to some limited number of server failures. At the extreme of this spectrum one finds Byzantine Fault Tolerance services, which can even tolerate compromise. Monitoring agricultural environment for various factors such as temperature and carbon monoxide along with other factors can be of significance. The work objective is optimal usage of water in irrigation, proper nutrient management to plant and avoid crop losses due to diseases and pests with proper scheduling of sprays. In this context, we have proposed an agro advisory system for the pomegranate field. Pests of Fruits (Banana, Mango and Pomegranate) dynamics of groundnut crop sprays and application of fertilizers from pruning till harvesting for diseases and pests management. monitor climate, soil, pasture and animals and to form a closed loop control system and pesticides helps to increase the crop quality, minimizes farming cost and maintain nature balance. Practical implementation and testing of proposed system shows the improvement Climate impacts on agriculture in case of productivity, agriculture practices, environmental and rural climate change is precisely identifying climate change. Thust tackle the problem of uneven climate change smartly causes monitor climate, soil, pasture and animals and to form a closed loop control system over tradinationally followed methods of irrigation, nutrition and spray scheduling management. improving crop production," As future direction for research is develop simplified, low cost and scalable system specifically for developing countries farming markets. Also incorporating latest technologies. Due to proper expert's advice and timely application of pesticides the pest attack on the crop was successfully avoided. event is assumed to be *spots on the leaves*, then the information will be the picture of the leaves, and the experiential attribute will be the farmer's insight. sprays and application of fertilizers from pruning till harvesting for diseases and pests management. advisory system.

III. RESEARCH METHODOLOGY

In the current scenario, farmers have very less knowledge about the soil and its parameters level, percentage of carbon, nitrogen, water absorbing capacity etc. which plays a very big role in the crop production. Farmers are doing the farming based on traditional knowledge so it is difficult for the them to predict that which type of soil is suitable for which type of crop and because of insufficient knowledge farmers are facing loss in the crop production degrading the economical structure of the farmers. As the scientific consensus grows that significant climate change, in particular increased temperatures and precipitation, is very likely to occur over the 21st century economic research has attempted to quantify the possible impacts of climate change on soil. So, there is a need to design of performance monitoring unit for reconfigurable embedded processor. In software design, communication protocol layers have the energy conservation for the center. Take the communication between the sensor nodes and the network coordinator as an example to introduce the flow of communication between the system. Before making communication, software module need effective initialization, When the server receives weather data from sensor nodes, the server will check the weather data With notification value by using decision Tree techniques. If it matches with the pre-conditions, it will notify the system administrator and record of the notification and automatically store weather data to the database. Networks coordination are similar. Software design mainly programmed with C# language combining for the collected data display, analysis and storage etc. When the server receives weather data from sensor nodes, the server will check the weather data with notification value by using decision Tree techniques. If it matches with the pre-conditions, it will notify the stem administrator and record of the notification and automatically store weather data to the database.

Methodology Software Design Flow

In software design, communication protocol layers have the energy conservation for the center. Take the communication between the sensor nodes and the network coordinator as an example to introduce the flow of communication between the modules. Before making communication, module need effective initialization, The initialization process between nodes and the network coordinator shown in Figure. During initialization, the network coordinator issues a active signaling request to connect the sensor nodes. After the sensor nodes successfully receive and verify a data frame and MAC command frames. Return Acknowledgment frame to the sink node, the node's module is in sleep mode.

System Flow

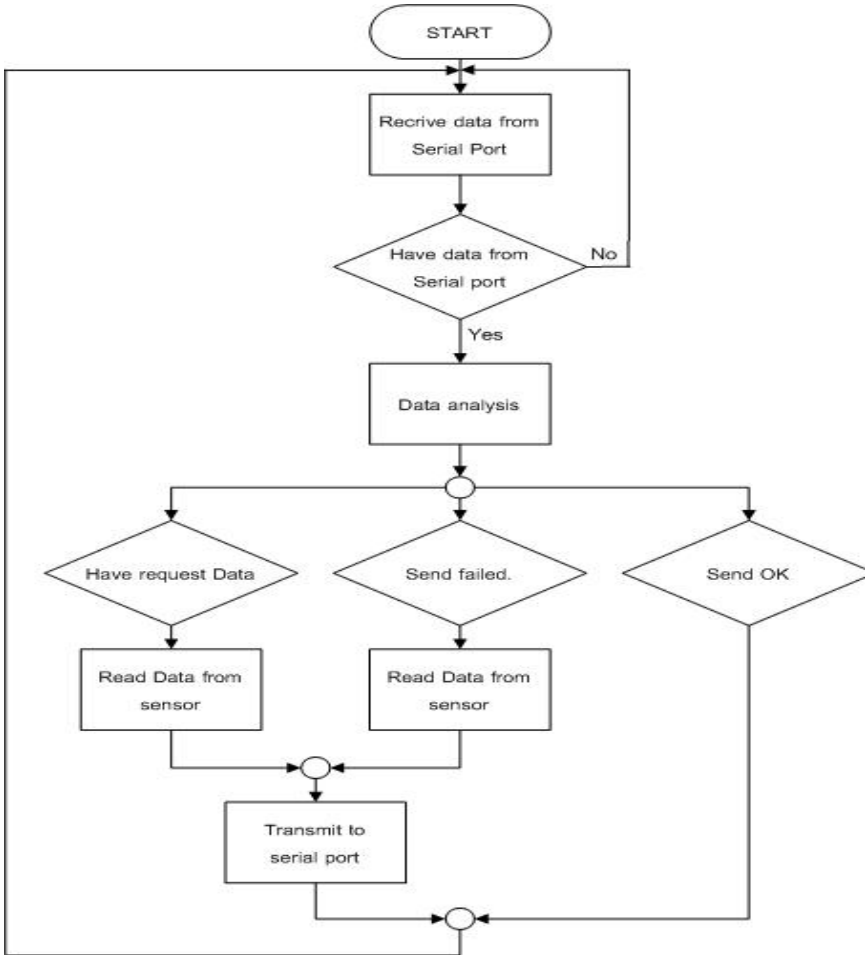

Figure 1.System Flow

After initialization, module information processing, the network coordinator is from the working mode to waiting for connection request signaling for the response of the sensor node, and on the regular time, the sensor nodes take the initiative request to connect the network coordinator and report the detected security information inside the mine to the network coordinator. The communication between sensor nodes and sink nodes, and exchange between sink nodes and networks coordination are similar. Software design mainly programmed with C# language combining for the collected data display, analysis and storage etc. user as end user are presented, however aims to bridge the gap between user, agricultural experts, financial institutions, soil testing labs, agriculture market and other agriculture related institutions. We propose a novel experiential computing approach which aims to give more to an expert by capturing, detecting, storing and analyzing the history of various events in agriculture. Each weather station possesses atmospheric, soil and plant parameters monitoring sensors; data logger and modem for data storage and transmission; battery to energize all blocks of the weather station and a battery charging unit. The sensors that are available with weather station includes temperature, relative humidity.. The data logger on weather station collects the data from sensors and transmits. Each farmer, seeking the service, is required to perform registration by providing the details of the field location, crop, analysis reports, and history of irrigation, fertilizer and pesticide application.

IV. IMPLEMENTATION

The classification and modeling of agricultural events, modeling of the agricultural experiences, and a method to browse through the history of agriculture experiences soil type, crop, crop variety, season, target, and if available fertility status. In the challenges involved in the Developments of decision support system to be used by farmers as end user are presented, however aims to bridge the gap between farmers, agricultural experts, financial institutions, soil testing labs, agriculture market and other agriculture related institutions. We propose a novel experiential computing approach which aims to provide more insights

to an expert by capturing, detecting, storing and analyzing the history of various events in agriculture. Each weather station possesses atmospheric, soil and plant parameters monitoring sensors; data logger and modem for data storage and transmission; battery to energize all blocks of the weather station and a solar panel based battery charging unit. The sensors that are available with weather station includes temperature, relative humidity, soil moisture, soil temperature, grass temperature, wind direction, wind speed, solar radiation, rain gauge, leaf temperature and leaf wetness, and virtual dew point sensor. The data logger on weather station collects the data from sensors and transmits. Each farmer, seeking the service, is initially required to perform registration by providing the details of the field location, crop, crop type, soil type, petiole analysis reports, and history of irrigation, fertilizer and pesticide application on the field.

V. APPLICATIONS

- Can be applied to the person who are working in underground
- Can be applied at any working condition
- Coalmines
- Industries
- Tunnels
- Used in the various industries for safety purpose
- The system is also used for protection system to any machine

VI. CONCLUSION

It tackle the problem of uneven climate change smartly causes economic losses. Optimized usage of water, nutrient for crop and pesticides helps to increase the crop quality, minimizes farming cost and maintain nature balance. Practical implementation and testing of proposed system shows the improvement over tradinationally followed methods of irrigation, nutrition and spray scheduling management. As future direction for research is develop simplified, low cost and scalable system specifically for developing countries farming markets. Also incorporating latest technologies such as cloud computing, big data and IoT will further help for more precise and efficient system.

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