Agro Advisory System Using Wireless PAN

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Abstract : Huge amount of data is collected by the sensors from the end Subsequently, this considerably big amount of data must be processed, analyzed and stored in a cost effective ways. In this manner, an enormous pool of computing resources and storage must be provided to compute this vast amount of data. We focused on introducing the latest technologies such as sensors, WSN to radically revise approaches to agriculture by collecting the data about the various parameters of soil, analyzes the data and performed the computations, giving the best optimal solutions for the farming. The application of computing in agricultural economy will open up a vast range of prospects, such as the vast storage of agriculture information, the cloud management of agricultural production process, the storage of agricultural economy information, early-warning and policy-making based on the agricultural products market, the tracing management of agricultural products quality**..**

***IndexTerms* - Sensors, Computing Resources, WSN Tracing Management, Policy-Making.**

I. INTRODUCTION

The main contextual data elements of Aurdnio 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 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.

II. LITERATURE SURVEY

We present late blight disease forecasting protocol, by integrating sensor based mathematical disease forecasting models, with human participatory diagnosis using mobile phone application overlay mKRISHI system[1]. 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. State machine replication behavior, virtual synchrony, or other strong, formally specified consistency models, up to some limited number of server failures[2]. At the extreme of this spectrum one finds Byzantine Fault Tolerance services, which can even tolerate compromise[3]. In a smart wireless sensor network (WSN) for an agricultural environment. Monitoring agricultural environment for various factors such as temperature and carbon monoxide along with other factors can be of significance[5].

III. HARDWARE IMPLEMENTATION

A . Tower

The tower is made of aluminum, and is 10 meters (33 feet) tall. It is anchored in concrete 4 feet deep, and at the top is a lightning rod to protect the weather instruments in case of a lightning strike. The tower has 3 guy wires to help support it, and is hinged at the bottom so that the instruments at the top of the tower can be easily lowered close to the ground for maintenance or calibration.

B. Relative Humidity

Relative humidity is the amount of water vapor that can be held in the air at a given temperature. It is expressed in percent, ranging from 0% (very dry) to 100% (dripping wet). The relative humidity sensor is also located inside the white 12-plate radiation shield, to protect the instrument from direct sunlight.

C. Air Temperature

This essential parameter is measured with a platinum resistance temperature detector, a very small and sensitive instrument. It is located inside a white 12-plate radiation shield, to protect the instrument from direct sunlight. It is located at a height of 2 meters (approx. 6 feet) to avoid temperature extremes found near ground level.

IV. SOFTWARE DESIGN

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 ZigBee modules. Before making communication, ZigBee 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. 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.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.

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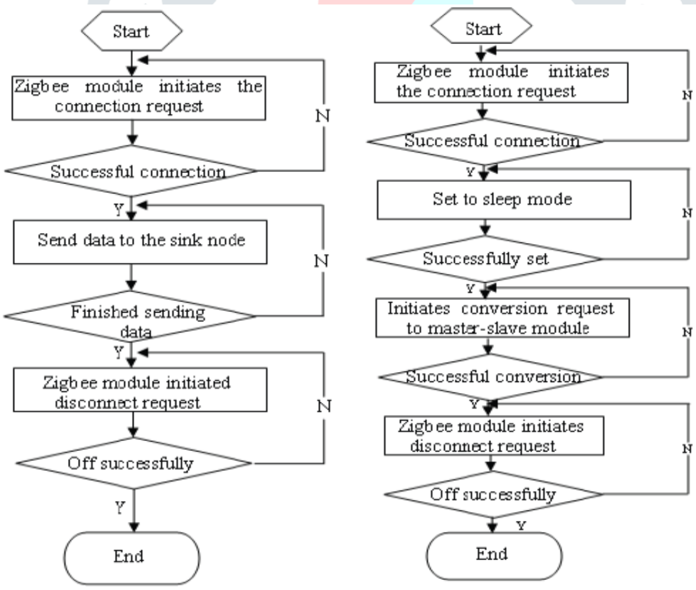

Figure 1. Data Flow Design

V. CONCLUSIONS

This research focuses on developing devices and tools to manage, display and alert the warnings using the advantages of a wireless sensor network system in mesh topology. The system can work over far distances. The system uses arduino microcontroller and Xbee Wireless module base on the Zigbee standard. The developed system is very accurate. The developed system has core competency including Display weather information, and alert when weather conditions match using decision technique with weather information.

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