Literature survey on the selected project & information gathering

Date	30 Aug 2022
Project Name	SmartFarmer - IoT Enabled Smart Farming Application
Team ID	PNT2022TMID07525
Maximum Marks	4 Marks

INTRODUCTION:

Agriculture is the unquestionably the largest livelihood provider in India. With rising population, there is a need for increased agricultural production.Water plays a major role in agriculture to delever water to the plants we use the method irrigation. In order to support greater production in farms, the requirement of the amount of fresh water used in irrigation also rises. Currently, agriculture accounts 83% of the total water consumption in India. Unplanned use of water inadvertently results in wastage of water. Many types of irrigation methods are practiced in farming which are used to save the water. This suggests that there is an urgent need to developsystems that prevent water wastage without imposing pressure on farmers. Over the past 15 years, farmers started using computers and software systems to organize their financial data and keep track of their transactions with third parties and also monitor their crops more effectively . In the Internet era, where information plays a key role in people's lives, agriculture is rapidly becoming a very data intensive industry where farmers need to collect and evaluate a huge amount of information from a diverse number of devices (eg., sensors, faming machinery etc.) in order to become more efficient in production and communicating appropriate information . With the advent of open source Arduino boards along with cheap moisture sensors, it is viable to create devices that can monitor the soil moisture content and accordingly irrigating the fields or the landscape as an when needed these technologies reduce the burden of farmers by a lot. The proposed system makes use of microcontroller ATMEGA328P on arduino uno platform and IOT which enable farmers to remotely monitor the status of sprinklers installed on the farm by knowing the sensor values thereby, making the farmers' work much easier as they can concentrate on other farm activities.

LITERATURE REVIEW:

[1] In A Remote Measurement and Control System for Greenhouse Based on GSM-SMS the proposed system introduced a GSM-SMS remote measurement and control system for greenhouse based on PC-based database system connected with base station. Base station is developed by using a microcontroller, GSM module, sensors and actuators. In practical operation, the central station receives and sends messages

through GSM module. Criterion value of parameters to be measured in every base station is set by central station, and then in base stations parameters including the air temperature, the air humidity.

[2] Indu et al. (2013) mainly focuses on reviews in the field of remote monitoring and control, the technology used and their potential advantages. The paper proposes an innovative GSM/Bluetooth based remote controlled embedded system for irrigation. The system sets the irrigation time depending on the temperature and humidity reading from sensors and type of crop and can automatically irrigate the field when unattended. Information is exchanged between far end and designed system via SMS on GSM network. A Bluetooth module is also interfaced with the main microcontroller chip which eliminates the SMS charges when the user is within the limited range of few meters to the designated system. The system informs users about many conditions like status of electricity, dry running motor, increased temperature, water content in soil and smoke via SMS on GSM network or by Bluetooth.

[3] In R.Suresh et al. (2014) mentioned about using automatic microcontroller based rain gun irrigation system in which the irrigation will take place only when there will be intense requirement of water that save a large quantity of water. These systems bring a change to management of field resource where they developed a software stack called Android is used for devices that include an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language. Mobile phones have almost become an integral part of us serving multiple needs of humans. This application makes use of the GPRS feature of mobile phone as a solution for irrigation control system. These system covered lower range of agriculture land and not economically affordable.

[4] In IOT SMS alarm system based on SIM900A, an IOT alarm system based on SIM900A module of SIMCOM Company was designed for greenhouse. The system can gather environmental parameters such as air temperature and air humidity. Meanwhile, with the use of AT command, this system can also realize SMS automatic sending and receiving, environmental parameters overrun alarm and insufficient balance alarm. Through the system setting, the alarm message can be sent to the user-specified mobile phone automatically no matter what the users' location is. This system as a typical application of IOT in the agriculture has got some satisfactory results in the actual operation.

REFERENCES:

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[3] Csótó, Magyar, "Information flow in agriculture – through new channels for improved effectiveness", Journal of Agricultural Informatics 1 (2), 25–34, 2010

[4] Jin Shen, Song Jingling, Han Qiuyan and Yang Yan, "A Remote Measurement and Control System for Greenhouse Based on GSM-SMS", Electronic Measurement andInstruments, 2007. ICEMI '07. 8th International Conference .

[5] Indu Gautam and S.R.N Reddy, "Innovative GSM based Remote Controlled Embedded System for Irrigation", International Journal of Computer Applications Vol. 47 – No.13, June 2012.