



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 3, March 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com

An Efficient Telegram Integrated Smart Poultry System

G.Neelavathi, M.Muthumani, P.Sowmiya, T.Vinisha, K.Thulasimani

Assistant Professor, Department of ECE, Mahendra Engineering College, Namakkal, India

Department of ECE, Mahendra Engineering College, Namakkal, India

ABSTRACT: Monitoring environmental parameters in a real time industry are crucial. In this paper, various environmental parameters for effective growth of chickens have been identified and defined. It also explains the method to switch on either sprinkler or water motor based on threshold values of temperature and water level. As well as remote telegram based monitoring is done and with the help of this facility, the person in-charge can observe the situation and can react quickly if anything wrong happens. Poultry farms usually provide plenty of animal waste and by using that, goober gas can be developed and can be used for daily energy requirements. Hence, it's very important to maintain the proper environment for the chickens. The health of the chicken at an early age is something to be taken care of as there is chance of chicks competing with each other for telegram survival. Air inflow to the poultry farm also is important so while constructing the farm itself proper care should be taken.

I. INTRODUCTION

From the past few decades, around the globe, there has been an increased level of awareness regarding the safety of foodstuffs and there has been a high demand for better quality food. This has forced many countries to adopt new protocols such as traceability and Biosecurity measures in order to avoid the cost of expensive disasters. One of the key roles involved in the development of human civilization is in the area of agriculture. With the continuing increase in the world's population, the demand for food supply is extremely raised. Thus, not just farmers nor agriculturists, but also researchers have put considerable effort into a number of techniques to increase food production with an efficient return-of-investment methodology. The ability to monitor environmental conditions is crucial and it demands a good level of research in fields ranging from the change in climatic conditions in agriculture and zoology. This research focuses on the integration of wireless sensor and mobile network with a well know sensor integration platform using remote sensing.

An Internet based Smart Sensing Platform is used to monitor the environmental Parameters is proposed, overview of the system was shown in Figure 1. This will probably make work much easier and efficient in poultry farm management. Here if the temperature crosses threshold value, the designed system will warn the person by sending message through GSM module and thereby control that particular parameter by turning ON the sprinkler using GSM module. If the design system doesn't receive any response from GSM module within a specified period of time, it will automatically turn ON. Similarly, if the water level is below the threshold value, then the GSM module will switch ON the water motor. Owner of the poultry farm can do remote monitoring and get information about each parameter like temperature, humidity, water level by the developed system with the help of the telegram.

Protein is a part of human nutritional needs which can be obtained from either animals or plants. Up to this time of being, meats and egg consumption in Indonesia is counted as 5.51 and 6.36 kg/capita/year, respectively. From all meats and eggs that have been consumed, chicken consumption is calculated as 3.87 kg/capita/year. Meanwhile, purebred egg chicken and egg breed chicken consumption are consecutively counted as 5.84 and 0.18 kg/capita/year. From the mentioned data, it is known that the contribution of the chicken meat nationally reaches as of 70.23%, while the contribution of egg purebred chicken and egg breed chicken nationally reach as of 91.82% and 2.83% consecutively [1]. It can be concluded that native chickens' productivity is quite low due to several factors, such as temperature and humidity [2]. Temperature and the humidity in the coop requires fast and precise monitoring because it is easy to change [3]. Temperature and humidity must be properly regulated, feeding, and drinking as well as maintenance of sanitation so that chickens have avoided heat stress and pests [4].

Aside of that, the chicken coop, which has improper temperature generates the growth of the numbers of Coliform bacteria [5], decreasing the physical quality of chicken meats [6], and decreasing the health quality of its blood [7]. Meanwhile, if the coop humidity is improper, it can potentially generate Campylobacter Jejuni bacteria's growth and increase heat stress of the chickens [8]. Currently, there are many of temperature control devices that are still simple

and have not been integrated with the Internet of Things (IoT) platform. Thus, the process of temperature and humidity control takes relatively a lot of time [9]. As for the air quality monitoring program that is not carried out in real-time, then the chickens will have the possibility of the diseases due to the poorly monitored [10]. To overcome this, the researchers offer an innovative device for monitoring the air quality of chicken coops based on temperature, humidity, fan, as well as an incandescent bulb with the help of IoT. Technology advances in the microcontroller, which is based on the IoT, leads to an ease in the communication via internet. This technology can be controlled anytime and everywhere as long as it is connected to an internet connection [11]. A microcontroller is a chip that can be used as a control [12]. The development of monitoring and controlling technology for chicken coops is currently being

II. LITERATURE SURVEY

The system helps to the farmer to monitor the poultry farm and controlling the operations of poultry farm. System is a combination of wireless sensors and mobile system to manage and monitor the poultry's work easier. The environmental parameters like temperature, light intensity and ammonia gas are also monitored and controlled automatically [1]. Internet is linked together to the devices to communicate between thing and the people. The intelligent system can reduce cost, time and labours. The system replace the human labour to feeding food into container. It overcome the labour problems in the poultry industry and it also involves mainly two sections first to feed the food into particular contained and the second one is to control the temperature sensor to the freshness of chickens food [2]. It improves poultry's climate and reduce labour cost and save food and chicken feeding on time and avoid contaminated food from insects. The Poultry farm uses a computer network technology. In this study, a wireless sensor network technology is designed which monitor and control the climate of poultry farm and also humidity. A computer network technology is useful to the farmers for human work. It becomes an automation technology [3].

The automation system improves quality of meat production and then it will impact for the ecosystem balance. The poultry management system uses hardware and open source software. It also includes temperature, humidity, light intensity and also quality of air. System focus to provide the setup like IOT, low cost hardware and open source software. System detects many problems faced by poultry industry [4]. It saves time, dependency of labour's and improve healthy environment, also increases poultry production. The focus of this research paper is to monitoring and controlling the poultry environment using a wireless Sensors GPRS network and also to take a correct action. Using this system user can monitor and also control the climate of poultry farm, and help to form a healthy food to the chickens [5].

This system reduce cost, time of labour's, the system monitor environmental parameters such as temperature, humidity, ammonia gases, water level and maintain a healthy environment. The paper focus on automation of poultry farm using wireless sensor network and mobile communication system. This paper also focuses on environmental parameters like temperature, humidity, ammonia gas these are monitored and controlled fully automatically [6]. By using this automation quality of meat production is improved and growth. The smart poultry farm is fully focus on climate so the quality of chickens will be improved. The climate of poultry farm becomes fully automated.

The system's aim is to provide to build an automated environment controlled poultry management system. The system study the physical parameters about poultry house it includes temperature, humidity, moisture content, air and also the quality of the air. System not only monitored the poultry house but also regulates these parameters properly [7]. The whole system access and control through remotely using handheld mobile devices. The system reduces labours, saves times. The paper focus to provide the desired climate conditions in poultry house and also to control the performance. The proper method of controlling poultry house the ventilation system is use and it is also include a main factor is air temperature, air humidity [8].

The uncertainty of system is also reduced and also this mode contras the system in hierarchical manner this project not only reduce production cost but improved health of animals. The paper focuses to the integration of wireless sensors and GPRS network to control and monitor the environmental parameters in the poultry farm. The environmental parameters like temperature, humidity, ammonia gas etc. System takes immediate action to control these environmental parameters. Food and water level is also controlled and monitor using automated system.

III. METHODS

The aim is to provide healthy chickens that produces quality eggs, so as to boost the massproductionofeggsinIndiabymonitoringfactorssuchasTemperature,water,foodfeederandmonitoring the health through Internet of Things (IoT) with the module called ESP32CAM.

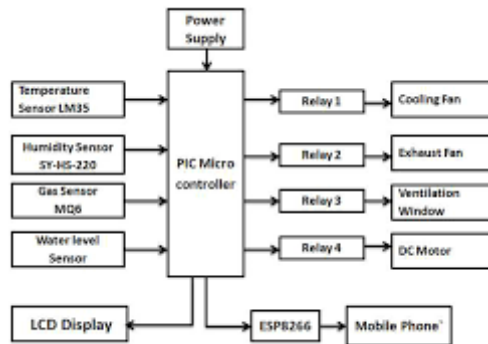


Fig 1: Telegram Based Smart Poultry Farm

Likewise, if the temperature increases, the food consumed by The temperature sensor detects the atmospheric temperature and compares it with the ideal temperature. If the temperature decreases, the consumption of food by the chicken increases to maintain its body temperature. Likewise, if the temperature increases, the food consumed by the chicken decreases, as it takes time to process the food. So temperature is identified using temperature sensor and based upon the temperature values the fan will ON & OFF automatically. Food and water operation is done based upon the timing. ESP-32CAM module is used to take the image of chicken and sends the image to the concern person’s telegram Application. All the details are updated in 16*2 LCD Display. And All the process is operated using PIC Microcontroller.

the chicken decreases, as it takes time to process the food. So temperature is identified using temperaturesensorandbaseduponthetemperaturevaluesthefanwillON&OFFautomatically.Foodandwateroperationis donebaseduponthetiming.ESP-32CAMmoduleis used to take the image of chicken and sends the image to the concern person’s telegramApplication.Allthedetailsareupdatedin16*2LCDDisplay.AndAlltheprocessisoperatedusingPIC Microcontroller.

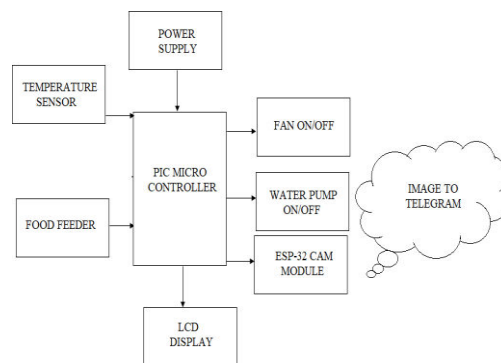


Fig 2: BLOCK DIAGRAM OF PIC MICROCONTROLLER

The ultimate goal of this project is to arrive at the interest in poultry items, to produce quality eggs and improve the profitability in India. The temperature sensor detects the atmospheric temperature and compares it with the ideal temperature. If the temperature decreases, the consumption of food by the chicken increases to maintain its body temperature.

IV. RESULT ANALYSIS

Here temperature sensor, humidity sensor and ultrasonic sensors are given to the base unit along with a GSM module. This will alert the person in-charge if the temperature of the poultry farm crosses a threshold value. This is as shown in the. After receiving warning message, the person in-charge will get information about the temperature. Now he has to set the temperature to the required range, for this a system is designed so as to turn ON the sprinkler through the message. Prior to this, the poultry farm should be equipped with sprinklers. The experimental set up is as shown in. In the experimental set up a Fan is used instead of a sprinkler. Temperature will come into the required range.

By sending messages which will trip the relay so that the fan will activate. Based on the threshold value if the water level is low in the tank, a warning message will be sent to the owner's mobile. From the same mobile owner can send a message back, to trip the relay so that water motor will turn ON. we have proposed a methodology to Alert, Control temperature, humidity, water level in a poultry farm. This work has been implemented is done with the help of Arduino UNO for controlling and alerting. CC3200 is used for organizing the data using a Google.

V. CONCLUSION

Internet of things provides ways to obtain information about farm production; however, the more data there is, the harder it is to determine the correct way to process these data. The solutions on the market are aimed specifically at gathering data, rather than processing and analyzing them. Poultry farming is one of the fields, where the application of Industry 4.0 principles is becoming a necessity, especially in the case of greenhouse gas control. Minimum standards and rules in the poultry management are regulated by EU Directives and required parameters must be ensured at all times, therefore, real-time environmental monitoring must be performed. The only practically viable approach is to automate data gathering using appropriate sensors, which is only possible if a standardized data structure model is defined.

REFERENCES

- [1] Archana M P1, Uma S K2, "Monitoring and controlling of poultry farm using IOT", International Journal of Innovative Research in Computer and Communication Engineering, Vol. 6, Issue 4, April 2018.
- [2] Zainal H. C. Soh1, Mohd H. Ismail1, "Development of automatic chicken feeder using Arduino Uno", IEEE, Dec 2017.
- [3] Danar Wicaksono, Ratna Mayasari, "Design and Analysis Automatic Temperature control in the Broiler poultry farm based on wireless sensor network", 2nd International Conferences on Information Technology, Information Systems and Electrical Engineering (ICITISEE), Nov 2017.
- [4] Raghudathesh G P1, Deepak D J2 "IOT based intelligent poultry management system using Linux embedded system", IEEE, Aug 2017.
- [5] Geetanjali A. Choukidar, Prof. N.A. Dawande, "Smart poultry farm automation and monitoring system", IEEE, June 2017.
- [6] Ayyappan.V, Deepika.T, "Smart poultry farm automation and monitoring system", IOT Based Smart Poultry Farm, South Asian Journal of Engineering and Technology Vol.3, No.2 (2017) 77–84,07/03/2017.
- [7] Lata S. Handigolkar, M.L. Kavya, "IOT based smart poultry farming using commodity hardware and software", Bonfring International Journal of Software Engineering and Soft Computing, Vol. 6, Special Issue, October 2016.
- [8] Teerapon Upachaban, Thana Radpukdee, "Climate control system of a poultry house using sliding mode control", International Symposium on Flexible Automation Cleveland, Ohio, U.S.A., 1 - 3 August, 2016.
- [9] Rupali B. Mahale, Dr. S. S. Sonavane, "Smart Poultry Farm: An Integrated solution using WSN and GPRS based network", International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 5, Issue 6, June 2016.
- [10] Abdul Muiz Fathi Md. Abas, "Chicken farm monitoring system farm", International Conference on Computer & Communication Engineering, may 2016.
- [11] Azzeddine Laknizi1,2*, Anas ElMaakoul2, "Evaluation of Earth-air heat exchanger for cooling and heating a poultry house: Case study in Morocco", may 2016.
- [12] Muhammmad Ammad-uddin, "Wireless sensor network: A Complete solution for poultry family", IEEE 2nd International Symposium on Telecommunication Technologies (ISTT), Langkawi, Malaysia (24-26 Nov 2014).
- [13] Yi Zhang*, Hironao Okada, Novel MEMS digital temperature sensor for wireless avian-influenza monitoring system in poultry farm", Aix-en-Provence, France, 11-13 May 2011.
- [14] Hironao Okada, Koutarou Suzuki, "Avian influenza surveillance system in poultry farms using wireless sensor network, Seville Spain 5-7 May 2010.



INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 8.118



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 **9940 572 462**  **6381 907 438**  **ijirset@gmail.com**



www.ijirset.com

Scan to save the contact details