Poultry AI camera watchdog system

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ABSTRACT

The Chicken poultry industry is an important industry for sustainable food supply in our country. The development of an automatic chicken feeding machine can be very useful to the growth of the poultry industry. In existing system, the chickens need a presence of manpower to manually give the food to the chickens. The use of proposed system can replace the worker for feeding the chicken thus overcome the labor problems in the industry and introduce a semi-automatic process in the poultry industry. The Proposed system can be applicable in Poultry Farm and agriculture sector. In poultry farm, it is use to feed the food in container, maintain the temperature using water sprinkler. We have used Temperature, humidity, intruder detection ultrasonic sensor, gas sensor and RTC (Real Time Clock). In this we using IOT module to set time customization for feeding and providing water. This system will control temperature, humidity, Camera based Intruder detection without any human interface. Based on the threshold values it will switch on the devices. Thus, this system design provides automated poultry, reduces man power and increases production of healthy chicken. Every sensor parameter data will display on LCD and IOT database.

Keywords: Watchdog System, AI Camera, Temperature, Humidity.

1. INTRODUCTION

In contemporary world automation plays a vital role. This paper focuses on an automation of poultry farm by using wireless sensor network and mobile communication system. Chicken is the most favourite produce in today's world because it is a nutrient rich food providing high protein, low fat and low cholesterol than other poultries. In this paper environmental parameters of a poultry farm such as temperature, humidity, and ammonia gas are monitored and controlled automatically in order to increase the growth of chicken. Water level also controlled and monitored with the help of sensor module. By connecting all the sensor modules to the microcontroller all sensor values are acquired then using wifi module it will be uploaded to the web page. The person in-charge of the poultry farm can get the internal environmental situation of poultry farm through PC or mobile phone using internet. This system will control temperature, humidity, ammonia gas and water level with the help of cooling fan, exhaust fan, ventilation window and DC motor without any human interface. Based on the threshold values it will switch on the devices. Thus this system design provides automated poultry, reduces

man power and increases production of healthy chicken. Food availability is a basic need for humans. Cases of poisoning or disease due to consuming contaminated food have occurred in Indonesia, so its availability needs special attention in terms of quality and quantity. The prospect of laying hens in Indonesia is considered very good in domestic and foreign markets when viewed from the supply and demand side. On the supply side, the production capacity of laying hens in Indonesia has not yet reached the actual production capacity. The production capacity can be seen from the number of breeding, animal feed, and pharmaceutical companies still producing below-installed capacity. The development prospects are still open. On the demand side, currently, the production of broiler chicken eggs only meets the needs of the domestic market by 65% [1]. The rest is filled with free-range chicken, duck, and quail eggs. The global trade climate, which has begun to be felt at this time, has increasingly made it possible for broiler egg products from Indonesia to go to foreign markets, considering that broiler products are elastic to changes in the annual per capita income of a country. Although the potential for laying hens is very attractive, some challenges can be a barrier to business that can turn potential profits into losses. The current problem in laying hens in Indonesia is using manual methods such as human labor to harvest eggs and provide feed. In the industrial world 4.0, companies will take advantage of IoT, cloud technology, and big data. In other words, human workers will be replaced by robots. The problem is how to design and build a prototype by implementing IoT for monitoring and controlling broiler chicken coops using multiple sensors? This study aims to design an IoT device for laying hens using several IoT sensors. The hope is that this IoT device can help lay hens in carrying out their activities. Internet of Things (IoT) technology is also proposed in chicken farm management to improve chicken health and meat quality Nowadays, chicken poultry industry is an important industry for sustainable food supply in our country. The development of an automatic chicken feeding machine can be very useful to the growth of the poultry industry, the Soil mixture for healthy environment and also water sprinkler for control the temperature is most important task and labour-intensive task. These manual processes are needed in normal poultry farm. In order to replace manual Activities and poultry work easier with making smart poultry farm. For implementation of smart poultry farm to use one kind of smart system for Automatic Food Feeder in container and water sprinkler for control the temperature of environment and also use the soil mixture for reducing the Gas in poultry environment. System is designed in such way that user can remotely control to the system through android mobile application. Using this prototype Human work is also reducible and smart work will be done.

2. LITERATURE RESEARCH

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 to 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 [9]. Smart helps to the farmers or labour's to monitor and remotely access to the whole system. One of the main benefit is to provide food and water level time to time without wastages. The paper reduce labour's manual work with labour's cost. It improves the meal production in poultry farm. By using wireless sensor data is collected from poultry's environment and it is combined to the sensors. So, controlling and monitoring poultry's climate is easily accessible to the user [10]. This system provides a monitoring system and which is useful to the owner to receive the information from poultry farm and also to control wirelessly. So this system is able to gather the data and operate automatically and helps to maintain the temperature in poultry farm. Moroccan poultry contributes in the national food security. It focuses on facing obstacles to climate conditions it includes heat in summer and cold waves in winter. The heat losses in the summer in terms of mortality and the cold waves increase the efficiency of the food. i.e. means quality of food is consumed [11].In this paper to study to saving, cooling and heating in poultry house by using earth-air heat exchanger. The paper includes to improve the poultry farm's production, quality and also economy. Using wireless sensor network, the poultry's growth improves that becomes it is a complete solution for poultry farming. The temperature is also maintained by using this wireless sensor network. By using this system quality and quantity of chickens is improved with human health is also improved [12]. The wireless sensor node would be very useful for early detection of status or health of chickens, and that's why production and economy is achieved. The research paper focuses to development of the wireless sensor node. Wireless system can reduce the public risk and economic cost of the avian-influenza is become to the least. Influenza infection can be detected according to the temperature and monitoring is done at a very early stage [13]. In order to meet the requirements of low power consumption and higher sensitivity, new micro temperature sensor technology was developed. This paper's aim is to determine minimum functions but enough for the practical monitoring. Wireless sensor node and temperature sensor detects infected chickens with the highly pathogenic avian influenza (HPAI) viruses in poultry farms. In early stage wireless sensor node shows weakness and never of the infected chickens. A global avian influenza surveillance system monitored the health

of chickens using wireless sensor nodes with poultry farm [14]. System reports to a user of health conditions obtained by sensors like as fever and weakness. Wireless sensor node has developed to reduce the power consumption of a device.

3. PROPOSED SYSTEM

Block Diagram of System In this system the main objective of the project is to setup an smart poultry monitor. which can be monitored using sensors via the internet. The feed dispenser is setup using the servo motor where it can be monitored and controlled in mobile application. Temperature sensor is interfaced to keep track on the temperature of water. RTC timer for feed with manual turn on/off option to be controlled at specific time. IR sensor is used to check the intruder and update to the mobile application. Main Objective of this system is: To control motor activity, To design an aquarium controller with an automated feed system. To monitor Intruder movement, temperature, water, To feed the user with data regarding the conditions in the poultry system via mobile application
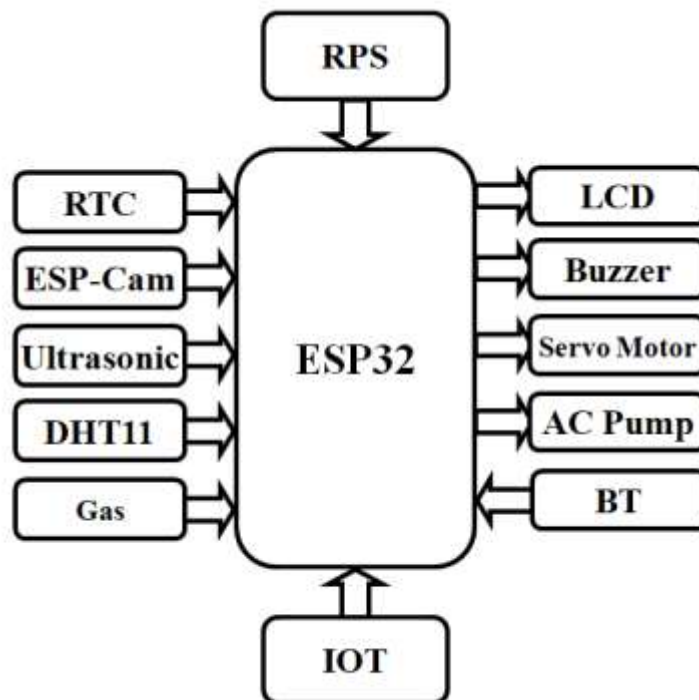

Figure.1: Block Diagram

The system can be divided into three parts: environmental sensing, load control, and the terminal computer. Environmental sensing includes circuit modules such as those for temperature sensing, The load-control part includes the pump motors, buzzer and automatic feeder. The system transmits the environmental data sensed by the smart poultry to the terminal computer through Wi-Fi, IOT web server is used in the terminal computer to compile these data, and it is then uploaded to Cloud. Finally, the results of the measured poultry environmental parameters are displayed in real time, and a general user can use a smart mobile device to obtain current environmental information about the smart poultry at any time and in any place.

In poultry farm, it is use to feed the food in container, maintain the temperature using water sprinkler. We have used Temperature, humidity, intruder detection IR and RTC (Real Time Clock). In this we using IOT module to set time customization for feeding and providing water. This system will control temperature, humidity, Intruder detection without any human interface. Based on the threshold values it will switch on the devices. Thus this system design provides automated poultry, reduces man power and increases production of healthy chicken. Every sensor parameter data will display on LCD and IOT database.

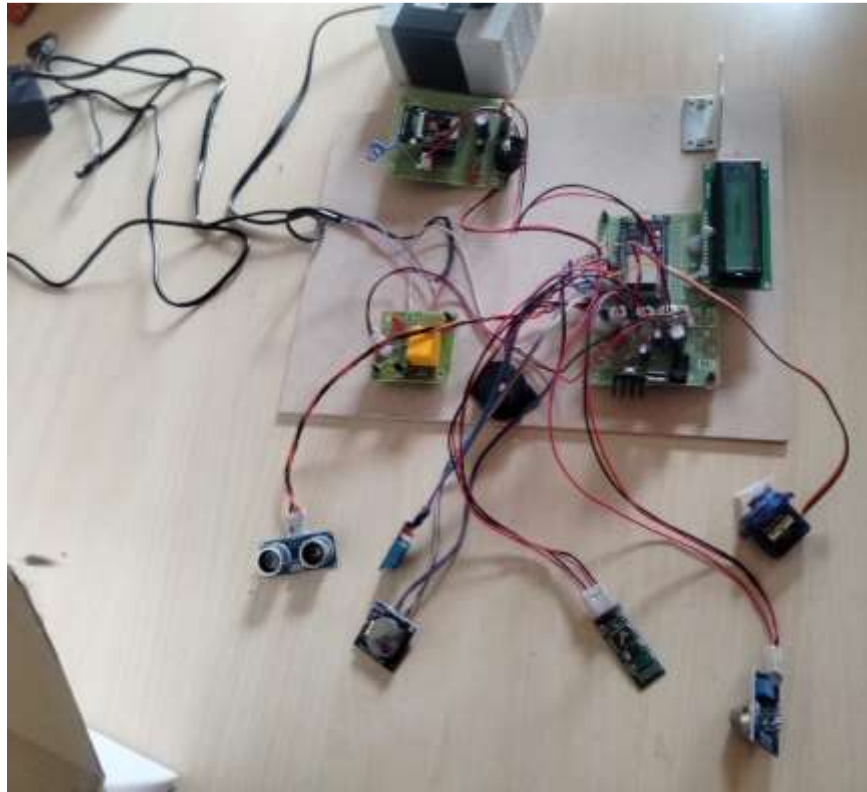**4**. **RESULTS**

Figure.2: Lcd Screen Displayed

Figure.3: Sensors and Wire Connection.

5. CONCLUSION

IOT is an innovative technology for poultry farming which can be changes a manual farm into modern semi-automated poultry farm. In addition, the system could work on the android mobile application helping the owner to monitor the poultry farm such as food feeding function, object detection, water sprinkling, and Temperature. The proposed system can reduce manpower and feed the food to chickens, maintain temperature in farm this is fully automatic. Hence this system will be reduce cost, time, manpower, decreasing environment pollution. We have used feed, water, temperature, and RTC (Real Time Clock). In this we using IOT module to set time customization for feeding and providing food and water. This system will control temperature, without any human interface. Based on the threshold values it will switch on the devices. We can control drain pump, feeder motor and inlet water pump using IOT APP. This system works well and can be implemented on any aquarium. Thus, the system overcomes the disadvantages of the existing system.

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