International Engineering Journal For Research & Development
Vol.5
Issue 5
E-ISSN NO:-2349-0721
Impact factor : 6.549

SMART POULTRY AUTOMATION USING ARDUINO

[1]Mr. Sanjay Eknath Gawali, [2]Mr. Shubham Rajendrakumar Wale, [3]Mr. Adesh Santosh Shinde, [4]Miss.Vaishnavi Vivekanand Pote, [5]Mr. Samir Nandkumar Patil

Assistant Professor And Head of Department Electronics & Telecommunication Engineering, G.M.V.I.T , Tala Mumbai University[1], UG Student Department of Electronics & Telecommunication Engineering G.M.V.I.T , Tala Mumbai University[2,3,4,5]

gawali_06@rediffmail.com[1], shubhamrwale@gmail.com[2], adeshb912@gmail.com[3], vaishnavi18pote@gmail.com[4], Smee8687@gmail.com[5]

ABSTRACT

This work is used to save the time and dependency of labor. Using combination of wireless system network to manage and monitor environment parameter like, light intensity, fan, water & temperature are monitored and controller automatically.

This system helps farmers also to monitor the poultry farm, it is combination of Arduino Nano, gassensor, LDR sensor, water sensor& temperature sensor work easier. The changes in this system is observe using LCD display.

Keywords: Automation, fan, light, water pump, temperature. Arduino Nano, Relay, Relay driver, LCD display.

INTRODUCTION

According to survey chicken is most favourite product. Since it's nutrient reach food providing high proteins. low fat and low cholesterol. Now each day automation play is extremely important role in our life. Environmental parameters of poultry farm like temperature ammonia gas, intensity of sunshine& water control automatically to increase the product of chicken. These environmental parameters controlled& monitor without Human interface. This system is designed in such a way that user can easily monitor to the system. Using this prototype it can save time and dependency of labourer

RELATED WORK

Controlling and monitoring the environment parameters water level & food control is monitor & control by using WSN & GPRS. Rupali B. Mahale [1] and et al. Studied application of IOT & wireless sensor network in smart poultry farm monitoring to enhance the standard of chicken production.A wireless network and mobile system network are wont to manage and remotely monitor the environmental additionally we also are designed to regulate and monitor food. Archana M P [2] Studied monitoring and controlling of ecological parameters also control the food value which effects on growth of chicken.

Automated machines have been used for the growth of the poultry industry an automatic chicken feeding machine introduce to reduce man power by using IOT **Ashwini Pingle[3]** studied using IOT system can work on mobile application helping the owner . To monitor the poultry Farm.

Automated environment controlled poultry management has been created using low coast hardware and softerware by using IOT **Lata S. Handigolkar[4]**studied using commodity hardware and software monitor IOT based smart poultry farm.

CONCEPT DIAGRAM

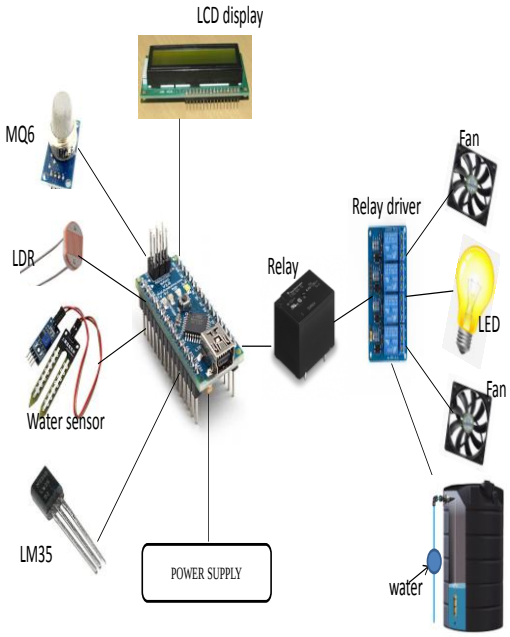

Figure 1: Full Block Diagram of the System

SYSTEM OVERVIEW

Shown in figure 1, components of the smart automatic farming system on arduino Nano are attested. Arduino easy to open source hardware &software . It is microcontroller based prototype board. The microcontroller utilized in the arduino Nano is At-mega 328 having operating voltage varies from 5v to 12v. It supports alternative ways of communication like 1. Serial photocell 2. I2C photocell 3. SPI photocell. it's non-volatile storage of 32kb & has EEPROM memory of 1kb.

METHODOLOGY

Arduino Nano:

Here we are using Arduino Nano. It takes inputs from sensor requirement with help of Arduino Nano (At mega 328). Arduino Nano is a microcontroller board of small size it is having wide range of application.

Gas sensor: MQ6:

As an environmental condition are directly affects to bird. Here is the gas sensor MQ6 we have used. It detects the unwanted gases like LPG, Methanol, Chloroform, etc. and passes this information to relay through arduino. And it clears the gases using exhaust fans.

LDR Sensor:

A **Light Dependent Resister** this resisters work on principle photo conductivity. The resistance of LDR in decreases when the light falls on it.

Temperature sensor (LM 35):

The temperature sensor we are using LM 35. It senses the temperature when the temperature is getting high above set point them this information is send it to fans with the help of relay.

Water level Controlled:

It controls the water level. When the water level is low it starts water flow in the tank with the technology we have used in it.

Relay/ Relay Drive:

The relay is an electromagnet. Commonly used in switching circuit also used to (ON/OFF).

LCD Display:

It is the two line LCD display with 16 characters; it indicates the output interfaced with microcontroller.

Flow Diagram

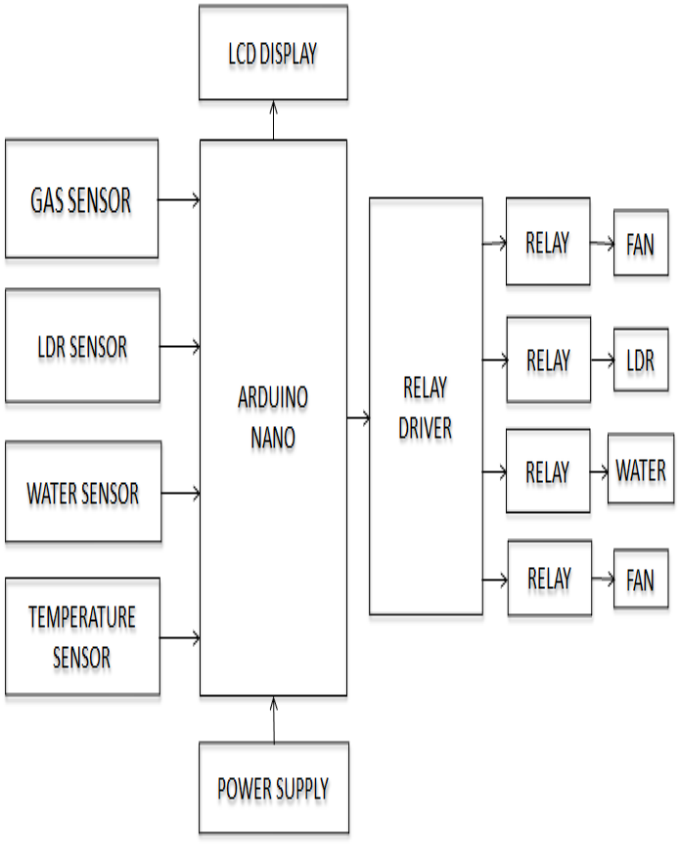

Figure 2: Flow Diagram of the System

Flow Chart

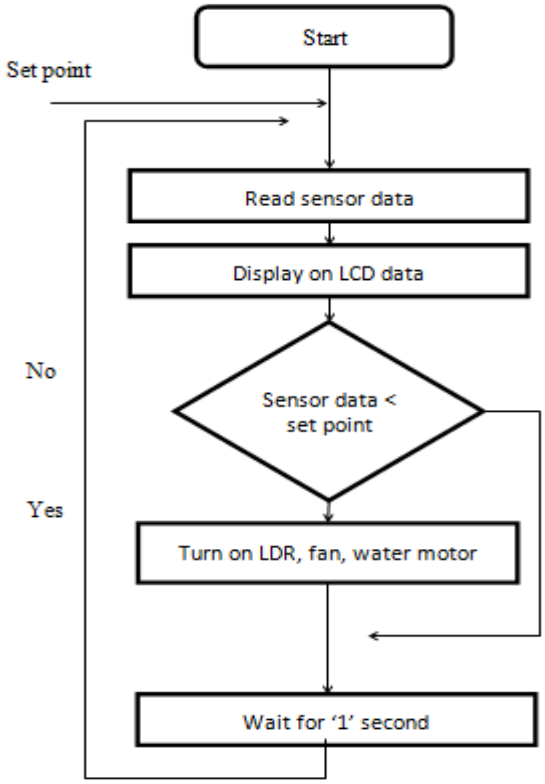

Figure 3: System Flow Chart

Figure 3: System Flow Chart

A. Algorithm:

Step 1: START

Step 2: Read sensor data

Step 3: Display data on the LCD

Step 4: If sensor_data< SET_POINT GOTO Step 5

else GOTO Step 6

Step 5: Turn on LDR, Fan, Water motor

Step 6: Waite for '1' second

Step 7: GOTO Step 2

Step 8: END

ADVANTAGES

[1] It helps to monitor the system very easily.

[2] It saves time and dependency of labor.

[3] It improves environmental condition.

[4] It helps to avoid wastage of water.

RESULT ANALYSIS

The smart poultry farm automation using arduino is used to save the time and dependency of labor; it reduces the human effort by using the system. Network which monitor the environment parameters as per the poultry farming parameters such as light intensity, fan, water & temperature are monitored and controller automatically.

Number of Sensor used	As our project implement on different sensor like temperature, gas sensor, water level sensor & LDR. It measures various parameters.
Energy efficiency	It reduces the human power & also saves time.
Cost	It has low cost as the project has been implemented on Arduino Nano

CONCLUSION

This system innovative chicken farming which changes a manual farm to a "Smart Farm". Monitoring and controlling environmental parameters like temperature, gas, light & water level control. The person in-change can observe things of internal of poultry farm by setting during a room as data are going to be display on CD display. The smart poultry system can reduce cost, time & labor. this technique is very user friendly to the farmers. This smart system also helps in reduce environment pollution and improving health of chicken.

REFERENCES

1. 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.
2. 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.
3. Shubham Mitkari, Ashwini Pingle, "IOT Based Smart Poultry Farm", International Research Journal of engineering and Technology (IRJET) Volume 6, Issue 3, March 2019.
4. 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.
5. Geetanjali A. Choukidar, Prof. N. A. Dawande, "Smart poultry farm automation and monitoring system", IEEE, June 2017.