

“IoT BASED SMART POULTRY FARM”

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Abstract: The demand for high-quality and sustainable food production has led to significant advancements in agricultural practices. In particular, poultry farming has witnessed a paradigm shift with the integration of Internet of Things (IoT) technologies. This abstract presents an overview of an IoT-based smart poultry farm designed specifically for optimized egg production.

The proposed smart poultry farm leverages IoT devices and sensors to monitor and control various parameters crucial to the well-being and productivity of the poultry. The system encompasses a comprehensive network of interconnected devices, including environmental sensors, automated feeding systems, smart egg collection mechanisms, and real-time data analytics.

The IoT-based smart poultry farm offers several benefits, including increased egg production efficiency, improved animal welfare, reduced labor requirements, and enhanced profitability. By providing real-time monitoring and control, farm managers can quickly identify and address any issues or abnormalities, resulting in optimized egg production and overall farm management.

Keywords: Arduino Uno, DTH Sensor, Gas Sensor etc.

I. INTRODUCTION

Welcome to the world of Internet of Things (IoT) based smart poultry farming for egg production! In this modern era, technology has revolutionized the way we approach agriculture, and poultry farming is no exception. By leveraging the power of the IoT, we can create a highly efficient and automated environment for poultry farmers to maximize their egg production and ensure the well-being of their flocks.[1] Gone are the days of manual monitoring labour - intensive processes. With IoT-based smart poultry farming, farmers can remotely monitor and control various aspects of their poultry farm, such as temperature, lighting, humidity, feeding, and even health monitoring, all through connected devices and sensors [2]. This level of automation not only saves time and effort but also enhances productivity and profitability.

The core principle of IoT-based smart poultry farming is the interconnectivity between different devices and systems. Sensors placed strategically throughout the farm continuously collect data on environmental conditions, such as temperature and humidity levels, and transmit this information to a central control system.[3] This data is then analysed in real-time to make informed decisions and adjustments to optimize the farm's conditions for maximum egg production.

II. METHODOLOGY

Implementing an IoT-based smart poultry farm for egg production can be a complex project involving various components such as sensors, controllers, and software systems. Here are some of the steps that can be involved in the project.

1. **Design and planning:** The first step in any project is to define the scope and requirements. In this case, you need to identify the sensors needed for monitoring the poultry farm environment, including temperature, humidity, light, and ammonia levels. You also need to plan the control system that will manage the farm's equipment, such as feeding and watering systems. Additionally, you need to design the software system that will analyse the data collected from the sensors.
2. **Hardware selection and installation:** Based on the design and planning, you need to select the required hardware components and install them in the poultry farm. The installation process may involve configuring the sensors and controllers and connecting them to the network.
3. **Software development:** The software system is a critical component of the smart poultry farm. You need to develop the software that will collect, analyse and present the data from the sensors. You may need to use a combination of programming languages, such as embedded C or C++, and software tools.

4. Testing and validation: Once the hardware and software components are installed, you need to test and validate the system to ensure that it is functioning as expected. This involves checking the accuracy of the sensors, the responsiveness of the control system, and the reliability of the software system.
5. Deployment and maintenance: After testing and validation, you can deploy the system in the poultry farm. You also need to ensure that the system is maintained and updated regularly to ensure its continued performance.

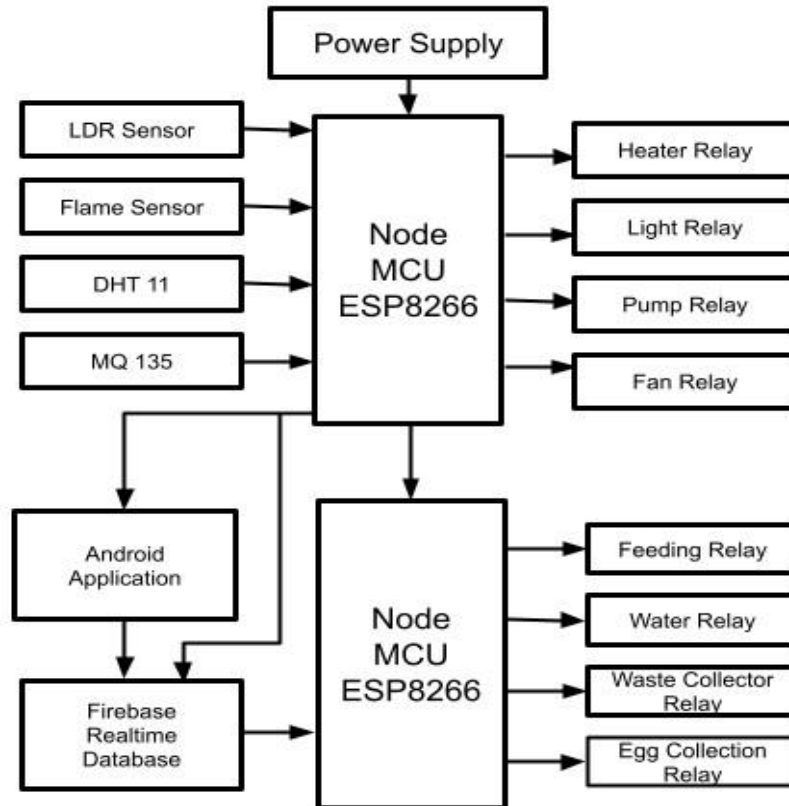


Fig. I. System Block diagram

III. CONCLUSION

As the tested results shows that, IOT is an innovative technology for poultry farming which changes a manual farm into modern semi-automated poultry farm. This automated system very useful for farmers as they easily access and control the system remotely using their handheld mobile devices. The system works on the android mobile application helping the owner to monitor the poultry farm such as food feeding function, waste collector, egg collector, heater, exhaust fan, light and cooler. The implemented system reduces manpower utilized for food feeding, reduce the unwanted gas, cleaning of poultry farm, and maintaining temperature in the farm and the system implemented is fully automated. Hence this system reduce cost, time, manpower, reducing environment pollution and increases productivity.

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