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CATTLE HEALTH MONITORING BASED ON IOT

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Abstract--*The Animal breeding is an increasingly popular enterprise in which animals are fed food and other products. The livestock farms output is largely determined by the animal's health conditions. The profitability of the entire farm will dramatically decline from cattle with a communicable disease. Therefore, unhealthy cattle should be identified. IoT may play a significant role in the creation of an autonomous health surveillance network for animals in this sense. A framework comprising data storage, mobile nodes, and IoT cloud platform is built in this project. The data collection node is fed by different sensors for the identification of animal health parameters and is transferred to the mobile node. The smart phone node acts as a portal into the IoT cloud network for data processing of sensing data to recognize sick animals and notifies farm owner and veterinarian*.

Keywords-- *sensors, wireless transmission, physiological parameters, temperature humidity*.

I INTRODUCTION

In recent year's cattle farmers have been confronted with global problems of cattle wellbeing, as air temperatures in the troposphere have been gradually increasing [1]. Temperature shifts for the wellbeing of cattle have a detrimental impact that contributes to illness such as fetus and mouth illness, swine flu, encephalopathy (spongioform mad cow), bovine rhinotracheitis, squamous cell carcinoma, warts, web split, pododermatitis, polioencephalomalacia, hipomagnesaemia, clostridia and hypoglycemia [2]. WHO study suggests that the SRC-CoV is an agricultural infection, which can quickly propagate to other species and even directly influences human beings [3]. Technology now forms part of modern agriculture and play a increasing role in the development of sophisticated systems and resources. Electronic livestock farming has been one of the main fields of growth in recent years. Many research concentrate on the advancement of telemonitoring systems for animal welfare [4].

Two methods, such as direct (invasive) or indirect contact (non-invasive), are used to monitor health [5][6]. A telemonitoring system comprises primarily of the sensor and receivers with PC. Smith et al. recommended a clinical screening program for livestock, based on pain, core body temperature and heart rate [7]. It gives the agility of milk cows and even acceleration related to cows' agility. Janzekovic et al. recommended a polar sport check (PST) heart rate control system for livestock. Corporal temperature and cardiac velocity parameters are also used as an animal disease test. Wietrzyk and Radenkovic et al. describe the ad hoc wireless livestock health tracking network of sensors, finding that animal farmers are able to deter disease transmission using calculated results [8].

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Measured data processing often diminished efficiency and useful stock death. The two tension assessment methods for milky cows were suggested by Hopster et al. The strategies suggested are based on polar spot (PST) and electrocardiograph (ECG) studies [9][10]. The results of the subsequent analysis are also given.

They find that PST is an effective methodology to calculate animal heart rate and also to evaluate cardiovascular levels as important animal behavioral research parameters. Guo et al. suggested a livestock tracking and control system focused on wireless sensor networks. The system suggested is also ideal for simple detection of animal activates and behavior [11]. The Fleck2 processor board is used and four parameters such as GPS, accelerometer, magnetometer and temperature are calculated. Nadimi et al . suggested the ad hoc control and detection of animal actions in wireless sensor networks [12].

The communications module based on a 2.4 GHz frequency has been used and the concept suggested is focused on communications coherence, flexibility of resources and reduced packet loss risk. In system development, multihop communication and handshaking are used. The component parameters measured are transformed by means of an artificial neural network (ANN) based on a Multilayer perception in the corresponding behavioral modes. In terms of the average squared error ANN efficiency is well accomplished and even Algorithms like Nguyen Widrow and Levenberg-Marquardt have been educated in back propagation.

Handcock et al . Indicated and discussed the environmental effects of the network for cellular devices, GPS collars and satellite animal behaviour monitoring. The sensors and sensed satellite images are combined to perform interactions of animal landscape. Allen et al . Suggest heat stress against cow actions and also recognize action as a beneficial milk-producing parameter. The Infrarot Thermography Technology for Cattle has been suggested by Lovett et al. The technique proposed is useful in the examination of animal foot and mouth disease.

II PROPOSED SYSTEM

In Figure 1 shows the design of the system. The body parameter is interfaced with the data collection node in both sensors. Via networking systems the data obtained is transmitted to the mobile node. An interface between a communication modem and the data collection node is used to transfer data. The registered data was processed in the database in an external database-connected memory utilizing an online file management program. This data is processed before it is moved from the memory to the mobile device.

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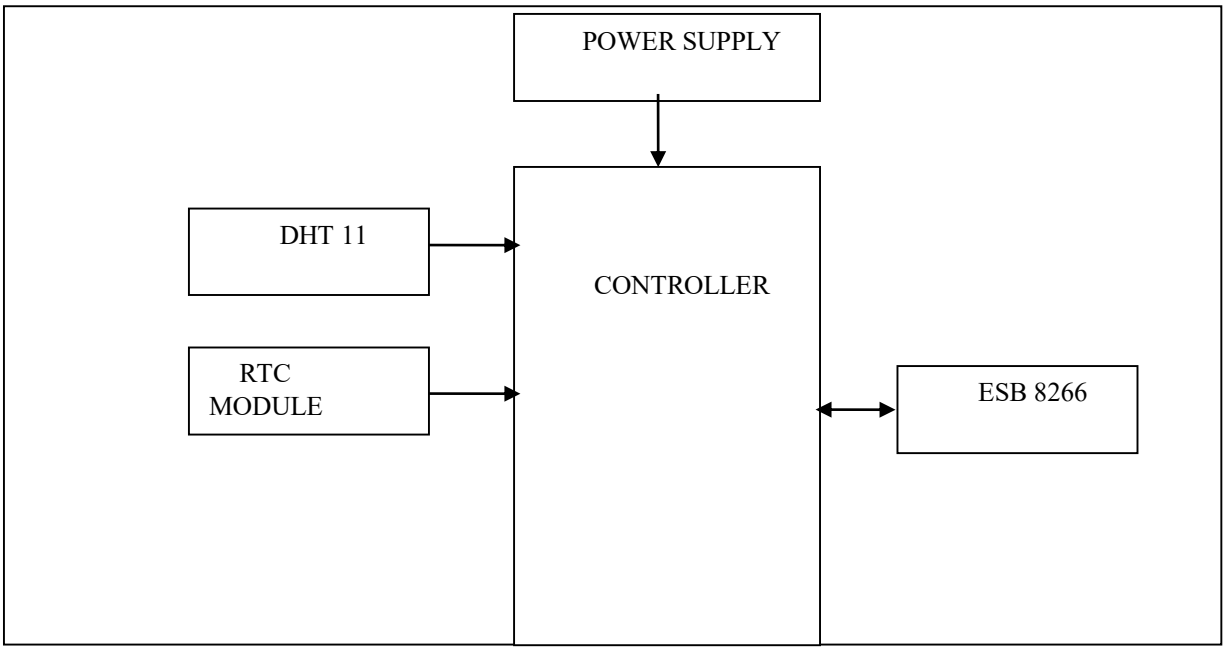

Figure 1: Design of the system

In a predefined way, the mobile node moves to retrieve data from all the data collection notes through its attached communication unit. By transmitting a signal, the mobile node starts contact. The node sends its data when the signal is received. Through building a local archive the obtained data is processed in the mobile node. After data has been collected, it is submitted to a cloud database for final visibility into cattle safety, where it can be accessed and evaluated in a front program.

III RESULTS

The project's key goal is to track cattle's safety using wireless sensor technologies. Basically WSNs are a collection of sensors used for tracking, documenting and handling the data gathered by means of a web page or application, including physical factors such as humidity, friction, temperature, etc. Figure 2 shows the result of the system.

Figure 1: Result in IoT webpage

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IV CONCLUSION

This research device is checked for the measurement of body temperature, rumination and heart rate physiological parameters, and for the control of the ambient humidity and temperature in real time. In order to reduce power usage, we used low power components electrical, so the device could work continuously unlimited periods. The sensor module is developed with low power, miniaturization, intelligence, easy to use, reduced cost, and portability and high efficiency new materials. The PCB should be built and produced in a compact PCB to reinstall the rigid card in order to support animals ergonomically.

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