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Animal Rescue Welfare and Wellness Web Application

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A B S T R A C T

Every living creature on this earth has equal importance within the ecosystem. Nevertheless, biodiversity is now at risk. In the forest or jungle, wild animals moved freely. In the event of an accident in the forests or any illnesses in them, sometimes livestock in the woods may be destroyed. But at present, the lives of the animals are in risk. Animals usually have habitual to walk freely within the farm. If any mishap happens to the animals in the acres of the farm, Road or Jungle, physical injury or the other sickness that even cause the death of animals within that acres of the farm, Road or Jungle. In such situations, the farmer cannot figure the precise location of the animal in that out-sized area. To avoid the above problems the only way is to find the exact geographical locations of the animal. Clinical techniques for monitoring livestock health are insufficient, as they provide only sporadic information and required too much resource investment in terms of time and veterinary expertise. In our proposed system that is allocating hardware which will mount on the animal body, at present there are no such systems which will provide on current status of the animal. At present to detect the health status of animal we required to wait for veterinary expertise which take long time for its arrival.

Keywords: **:** LM-35 Temperature Sensor, Heart Beat Sensor, GPS , Arduino Wellness Welfare**,**

INTRODUCTION

Everyone is aware that animals cannot speak or share their problems. Therefore, animal owners are always concerned to know the primary health of their pet. Hence this paper presents the prototype of wearable animal health monitoring system which can be used by the owner at home and the data can be conveyed to the veterinary doctor for further evaluation or primary treatment. The proposed system comprises of the various sensor modules such as the temperature, heart rate. The prototype will consist of all the sensors related to above mentioned physical parameters. The transmission of data will take place with the help of Arduino. These parameters being the most important must be monitored regularly if the specimen is unhealthy or suffering from any diseases. The owner must be able to monitor this at the residence. Therefore, this prototype will be user friendly to the common person using it. Additionally, it is uncomfortable for the patient. All this set a side, the diagnostic yield can still be low due to the monitoring of a relatively short period of time. Therefore, cost-effective wireless body electrodes that enable long-term monitoring of cardiac rhythm in real-world environment are being developed. They are suitably small and attached directly to the skin with a patch carrier, therefore dubbed ECG patch monitors. They are waterproof and include wireless communication technology. Beside the wearing comfort, which is achieved by reducing the number and length of the wires, these devices have very high reliability. Animal Healthcare ensures that farmed animals are healthy, disease free and well looked after. It also aims at preventing or managing – outbreaks of serious animal diseases, and in doing so support the farmers, protect the welfare of farmed animals.

LITERATURE REVIEW

This chapter comprises of the literature review and theoretical background of the project. The literature review deals basically with related project written by other researchers, the difficulties they encountered, limitations and modifications that should be made.

Animal Health Monitoring System Using IOT Mrunal Bhosale, Shubham Pawar, Pranali Jagtap, Mrs. D.M.Yewale. Now a day, many advanced technological techniques in real world operations are generated by scientists and engineers. Animal health is most important factor because they are used in farm, security purpose etc. no one cares or thinks about them. We cannot observe their issues easily. In current era, dairies contain large number of cow's. Therefore, to take of them, monitor them is more difficult. In animal health monitoring system, the major aspect is to monitor health of individual cow. So that we can easily observed and give treatment to sick cows. In our system we used various type of sensors like temperature, accelerometer and GPS. The statues of animal can be send to the animal health centre. [1]

Vaishnavi Shinde, Prof. Sweta Jha; Amruta Taral; Komal Salgaonkar; IOT Based Cattle health monitoring System. The key point to increase the farm productivity is health of cattle. Many dairies contain large number of cattle. Therefore, it is too difficult to take care of them and to monitor routinely the health of dairy cattle. So this work is very adamantine to the owner of dairy and regional authorities. The main aspect of health monitoring system is to check continuously the health of individual of cattle, easily diagnosis and treatment of sick cattle as early as possible. In that system we use sensor

technology which maps the special aspects of animal behavior like temperature, heart rate etc. this data is aggregating and reporting to the health care canter. This reduces the minimal health inspection and long-term animal healthcare cost. [2]

Seema Kumaria Dr. Sumit Kumar Yadav Development of IoT Based Smart Animal Health Monitoring System using Raspberry Pi: A prototype of smart animal health monitoring system based on IoT for real time monitoring of the physiological parameters such as body temperature, heart rate and rumination with surrounding temperature and humidity has been developed. Various sensors mounted on the body of animals gives the information related to their health status and user can be easily access those data using the internet. We have used raspberry pi3 as core controller which has inbuilt Wi-Fi, it processes the data sensed by various sensor and displays on the monitor and forwards to the cloud. User can access the information from anywhere using internet and an android app. [3]

OBJECTIVES

1) To create a security system based on the use of Ardunio.

2) It is cheaper in cost and consumes less power.

3) To develop an application that is cost efficient.

4) Provide solution with least hardware requirement.

5) To enhance the quality of Medical facilities in the treatment of animals.

SYSTEM ARCHITECTURE

Sensors base technology use for biomedical application, size is the one of the important constraint. The sensors base device must be moderate in size and weight. However the sensors use in such device must able to detect body temperature and heart beats which is play important role in medical treatment and diagnosis. Another constraint is such device shall be controller and access remotely. The sensors are used for automatic measurement of various health factors. Such type of sensors would be mounted on the animals body, which continuously observe the body issues of the animals like heartbeat rate, body temperature etc. and delivers output in the type of electrical signs. These signs are then compared to a standard limit of normal values. The Sensors such as respiration sensor, humidity sensor and rumination sensor are used in the advanced animals health monitoring system .These sensors are connected to the Arduino uno(controller).

LMM-35 temperature Sensor: In sensor technology, sensors are used to sense the body temperature of the animals. LM35 is used as the body temperature sensor. The normal body temperature of the animals is 38.5-39.5 degree Celsius. If the temperature of the animals is less than the normal temperature the animals may suffer from diseases. If the temperature of the animals is more than the normal temperature the animals may suffer from diseases like anthrax, influenza, foot and mouth diseases etc.

Heart Beat Sensor: The normal heartbeat of an adult cattle is between 48 and 84 beats per minute. This sensor will detect stress as well as animal's anxiety. The heartbeat sensor generally used is a stethoscope. It is kept behind animals elbow to listen over the left side of the animals chest. The elevation of the heart rate can lead to a sign of pain
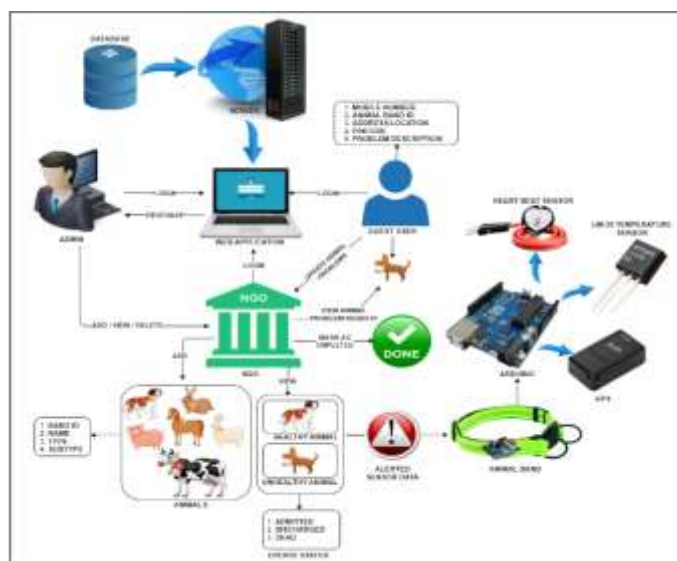

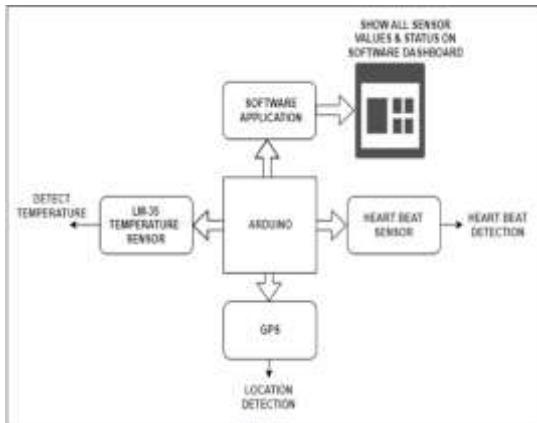**Fig: System Architecture**

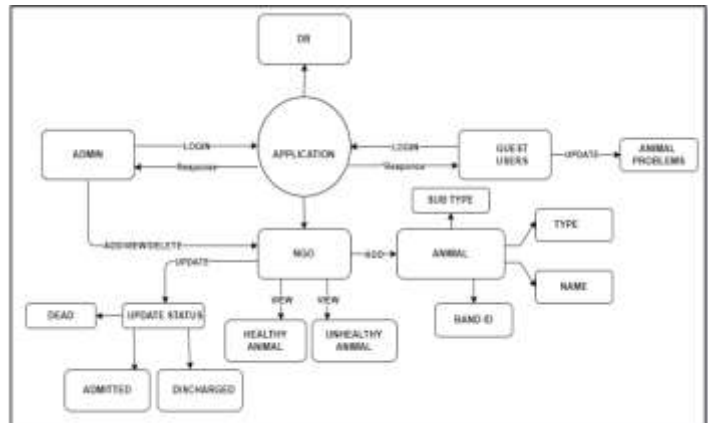## RESEARCH METHODOLOGY

Fig1 : Block diagram

Fig 2: Flow Chart

APPLICATION

1) The Application is to monitor the situation of animals in City.

2) This Application can also be helpful for further studies on animals behaviour.

3) Regularly check the animal health without hospital.

4) In order to improve animal health or minimize the Cattle health problems.

5) This system will be used in veterinary clinics.

6) It has an important social impact in the field of animal health surveillance and to minimize animal diseases.

7) Medical improvement for animal health.

8) Doctors to monitor animals remotely without risk of infection

9) A single doctor over several animals at a time.

10) Doctor gets instant alert in case of health fluctuations of emergency.

ADVANGES

1. Very high accuracy.

2. Easy to use.

3. Low cost

4. Low power consumption

5. High accuracy

6. The sensor has excellent sensitivity combined with a quick response time

7. Easy implementation

8. Improve Efficiency

9. Cost effective and easily manageable

10. Easy to access the system anywhere and anytime

11. Better inform and monitor the impact of regulations to avoid loss of Animals

12. Using temperature sensor, we can sense temperature of animal.

13. Using GPS, we can track location of animal

PROPOSED METHODOLOGY

1)   Arduino:

Arduino is an open-source electronics platform based on easy-to-use hardware and software. A developer can send a set of instructions to the microcontroller. This Arduino is based on the ATmega328P. There are total of 20 pins (0-19) out of which 6 are analog inputs, 14 are digital input output pins (6 pins provide PWM voltage) which can also be used as general-purpose pins, a ceramic resonator of frequency 16 MHz, an USB connection, a power jack and a reset button. It has an operating voltage of 5V. It contains everything needed to support a Arduino.
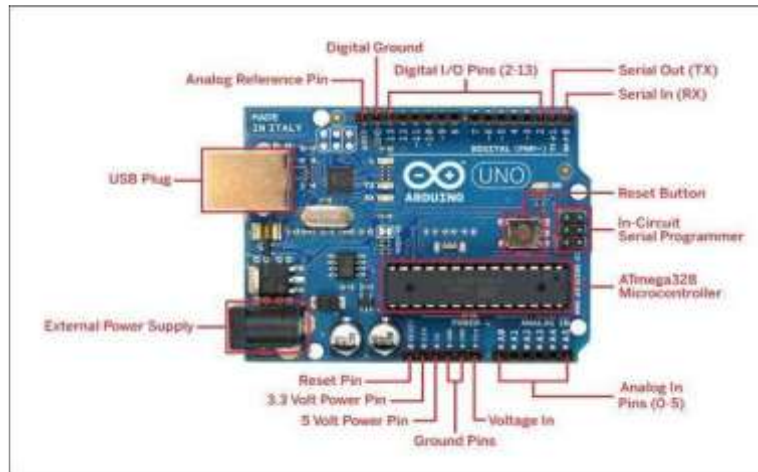

Fig: Arduino

•   Sensors:

The sensor is placed on the patient body for medical data generation. The main job of the sensors is to send regular updates about patient medical status to the nearest gateway in an encrypted format. At the same time, the sensors need to sign the data before sending to gateway using SignData () module. During the signing process, it includes data hash code, timestamp and sensor pseudo-ID to the actual data.

1)   LM-35 Temparature Sensor:

LM35 is a temperature sensor that outputs an analog signal which is proportional to the instantaneous temperature. The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly-proportional to the Centigrade temperature. The output voltage can easily be interpreted to obtain a temperature reading in Celsius. The advantage of lm35 over thermistor is it does not require any external calibration

Fig: LM-35 Temperature Sensor

2)   Heart Beat Sensor:

Heart beat sensors are designed to give digital output heart beat when a finger is placed on it. When the heart beat detector starts working, the light emitting detector (LED) blinks simultaneously for every heartbeat. The heartbeat sensor is based on the principle of photoplethysmography. It measures the change in volume of blood through any organ of the body which causes a change in the light intensity through that organ (avascular region). In the case of applications where the heart pulse rate is to be monitored, the timing of the pulses is more important. The flow of blood volume is decided by the rate of heart pulses and since light is absorbed by the blood, the signal pulses are equivalent to the heartbeat pulses

Fig: Heart Beat sensor

3) GPS:

GPS sensors are receivers with antennas that use a satellite-based navigation system with a network of 24 satellites in orbit around the earth to provide position, velocity, and timing information. The signal contains data that a receiver uses to compute the locations of the satellites and to make other adjustments needed for accurate positioning. The receiver uses the time difference between the time of signal reception and the broadcast time to compute the distance, or range, from the receiver to the satellite.

Fig: GPS Sensor

FUTURE SCOPE

Future research should implement this framework on a real case study and develop a simulation model to show the benefits of implementing this proposal and compare the benefits expected from this framework with the actual results. We can place camera to watch animals activities

CONCLUSION

The proposed system is designed in HTML,CSS.The back end of the project is developed using java to work with yarn and npm packages. The project is a web application that has similar functionality to either a web application. The project aims to introduce a pet-friendly Web Application where shelters are found for an abandoned animal whose information is uploaded on the site by the users connected here, that in result raises awareness among people about the plight of strays and how each one of us can ensure a better and safer environment for these animals. Safety and security for animals.

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