



ANALYZING A CATTLE HEALTH MONITORING SYSTEM USING IOT AND ITS CHALLENGES IN SMART AGRICULTURE

Bharat Singh Thakur

Research Scholar,
SSUTMS, Sehore,
M.P.

ABSTRACT

The cattle farming is an important component of the world economy. Added benefits will be realized because of this category of technology, like the capability to determine the presence of disease thereby and early prevent the spread of its. Nowadays, lots of advance technical strategies in actual operations are produced by engineers as well as researchers. Among the advance specialized development streams is farm automation. Cattle Farming is an area which demands understanding and interest as the demands of each livestock vary based on the breed of it's as well as geographical location. The main problem in the milk business includes absence of information accessibility amongst farmers, financial problems as well as lack of understanding regarding the health as well as wellbeing of the cattle. Cattle wellness monitoring system is latest research subject in farm automation. The IOT based environment and cattle health monitoring technique monitors different livestock health parameters including body temperature, heartbeat, place of creatures as well as green variables like heat, humidity. The implementation of IoT would further develop the market as the info is going to be distributed with the whole public.

KEYWORDS: Cattle health, Smart Agriculture, IoT, Monitoring System.

1. INTRODUCTION

Cattle farming play a crucial role in the present era and are just about the most attractive sectors because milk as well as dairy products have an enormous demand throughout the globe. The quickly growing dairy industry demands the implementation of more info on an everyday basis. It's vital for the growers to have access to info about different breeds of cattle as well as the habits of theirs. Several of the problems experienced as of today are not enough information regarding the feeding practices of various breeds of livestock, insufficient understanding regarding the sicknesses as well as absence of preventive healthcare procedures [1].

During last 2 decades an essential requirement of farm automation being researched for wellness monitoring system. In this paper researcher has focused on monitoring the wellness of cattle by making use of noninvasive, affordable sensors technological innovation which detect abrupt change in body parameter as temperature, blood pressure etc. The parameter that's considered by sensors are entry by utilizing wireless engineering collect information use for early detection of disease this particular things will develops by utilizing IOT.

The primary goal of introducing brand new solutions for this area is obtaining better output and

income in a quick span of time, making the farming a lot more easier with the newest technology can help farmers lessen the hard work as well as male power they've to commit and may also draw in far more individuals to invest into this particular company. In case cattle isn't cared for and treated very well then, the odds that the yield of the cows is impacted is significantly improved. The farm must be handled effectively. The farm needs to be cleaned on a regular basis and also the cattle need to be given on time. This can instead lead to the greater health and also the cattle giving far more yields [2]

2. LITERATURE REVIEW

Swathi Ramnath Et el. (2017) explained the IoT based monitoring as well as localization for special packages. The experts proved that IoT based methods are additional bendy compared to some other localization methods as well as the structures of theirs are undoubtedly more correct on monitoring and localization. The paper pointed out that big unfold deployment of IoT is an organic choice for localization as well as monitoring plans and the status of its is on the rise. Nevertheless, safety associated elements are nevertheless a count of situation for all those packages [3].

Anitha Ilapakurti & Chandrasekar Vuppalapati (2015) described a novel method to cope with taking care of the important needs of Dairy undertaking. We unequivocally acknowledge as legitimate with which the associated Dairy will deliver colossal operational efficiencies, price budgetary money, and also substantial bits of expertise to tackle Dairy cultivate creature's relevant important problems. Associated milk, drastically, is a record empowered smart unit which encourages much better command of Dairy workouts. Sometime, connected milk provides anticipating bits of information that provides window of your time opportunity to milk functional command while in transit to much better plan to handle any unexpected weather connected variants from the majority, Dairy cow's health & crises [4].

S. Jegadeesan and Dr. G. K. D. Prasanna Venkatesan (2016) has illustrated concerning Wireless Sensor Network technology to the developments. Farmers may support creation with this homestead course of action and make a database with information accumulated from the farm and environmental variables' based devices [5].

Anselemi B.Lukonge, Ramadhani S and Dr.Shubi Kaijage. Sinda (2014) given ideas about some other cattle observing techniques and furthermore the advantages of utilizing remote sensor systems for checking steers center body temperature notwithstanding place for the homesteads together with their disadvantages and advantages [6].

3. METHODOLOGY

The Figure 1 gives a fundamental idea about the proposed method. The Health monitors the temperature sensor, humidity sensor and heart rate monitor. The temperature sensor is liable for checking the heat of the cows so that virtually any type of abnormal temperature readings or anomalies is quickly reported. The Pulse rate monitor is liable for checking the pulse price of the animal so that virtually any situation of increased pulse rate or maybe irregularities could be administered. Precisely the same information may possibly be applied to anticipate the feelings on the pet to an extent there by supporting the farm owners to quickly communicate with the creatures. The pulse rate could be monitored on a routine basis to assess whether the animal is good as well as allows the owners to take measures that are essential to make certain the great health of the livestock.

The data has been collected by all of the sensors over a periodic basis based on the demand of the users. This data delivered to a central processing unit (CPU) that is going to process the information to provide significant info therefore in is examined by the pros. The data is saved in the website that can be seen by the authorized personnel. This data is secure since it's entirely backed up in the website. This data is published into the cloud therefore it may able to be publicized and the farmers or other people can use this info whereby they could improve their yield and efficiency by utilizing the information which has already been established to deliver results that are good.

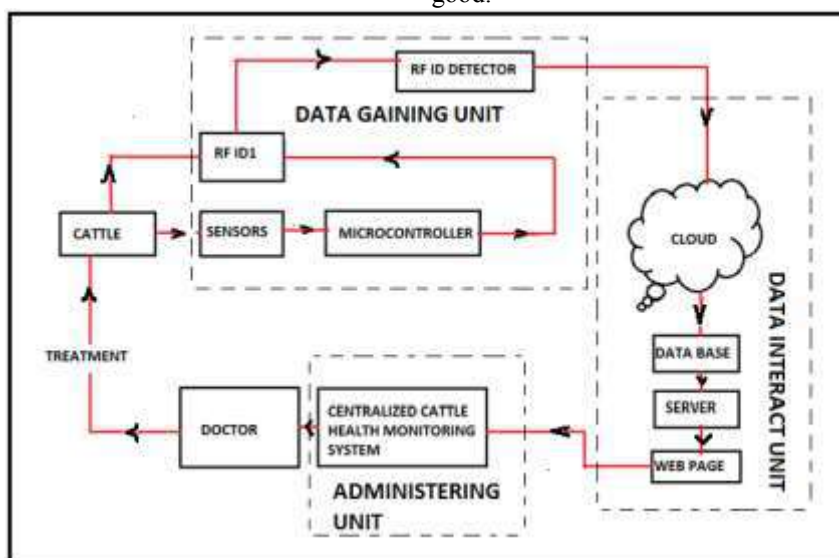


Figure 1: Architecture of Proposed System

Data gaining unit comprise of different sorts of biomedical sensors as body temperature sensor, pulse sensor, dampness sensor, heartbeat rate recognition sensor that is interfacing with microcontroller. The data gaining units acquire data and furthermore helps make it open for any data overseeing just as data

cooperate unit (cloud, server and furthermore site page).

The sensors are used for fundamental and general programmed estimation of numerous therapeutic variables. Such kind of health sensors is introduced on the dairy cattle body that always sees the body issues of the bovines as temperature, heartbeat rate

and so forth and furthermore take paper inside the sort of electric signal. These signals are then set close by a standard point of confinement of typical qualities built up as the beginning spot in data managing unit.

If the managing unit are seen irregular changes or huge changes in certain steers they can reach to closer creature care doctor and if a few causes specialist

won't offered in closer emergency clinic after that utilizing IOT overseeing unit controlling individual can convey the diagram to the specialist. So by watching this specific diagrams doctor can tell about the creature health data and furthermore appropriate treatment that to be actualizes on steers without doctor during crisis.

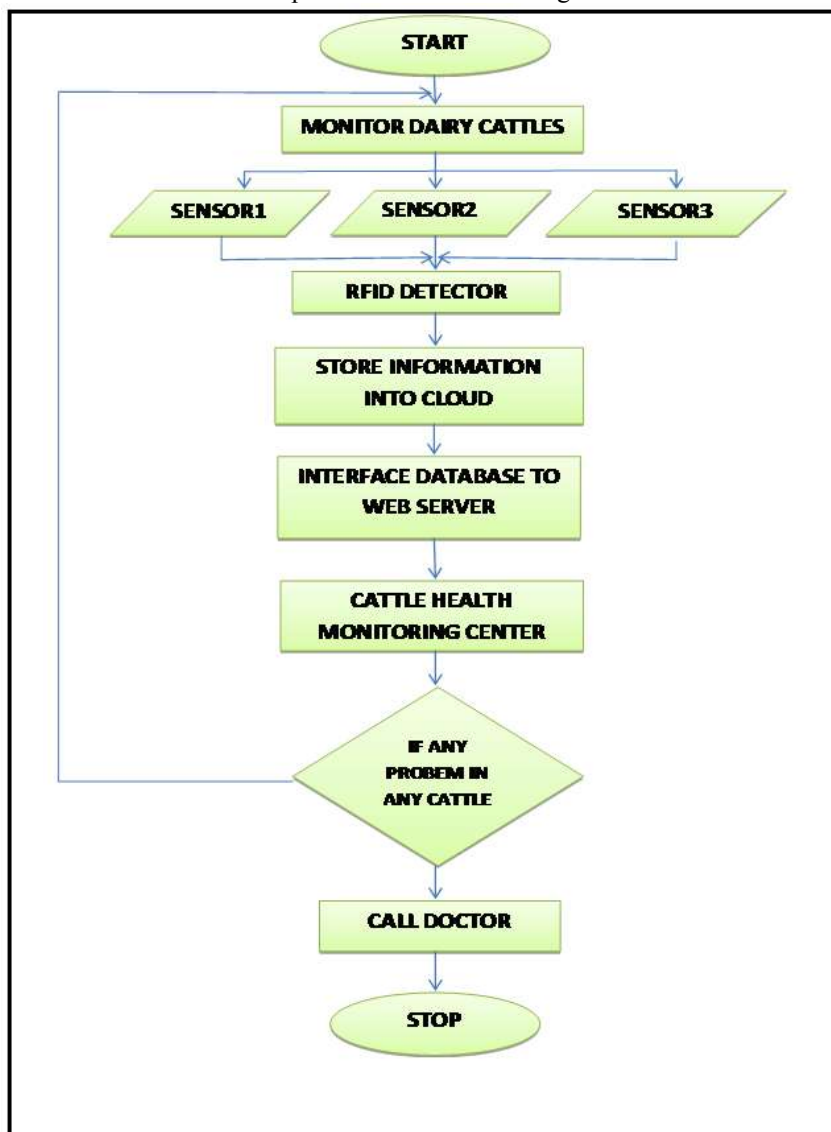


Figure 2: Flowchart

4. EXPERIMENTAL RESULTS

Subsequent to interfacing the majority of the receptors on the steers' body it will give the body temperature and furthermore heart beat chart. Utilizing this specific chart we can see the health of

the dairy animals and identify disease from what the cows' are having. The diagrams are explored below:

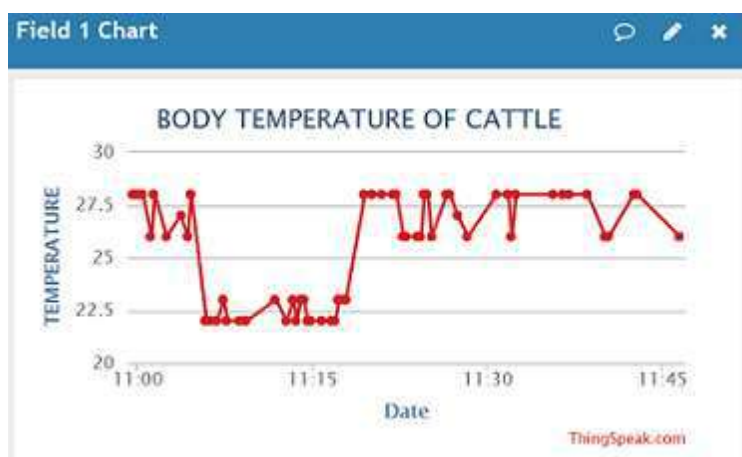


Figure 3: Body Temperature Of Cattle

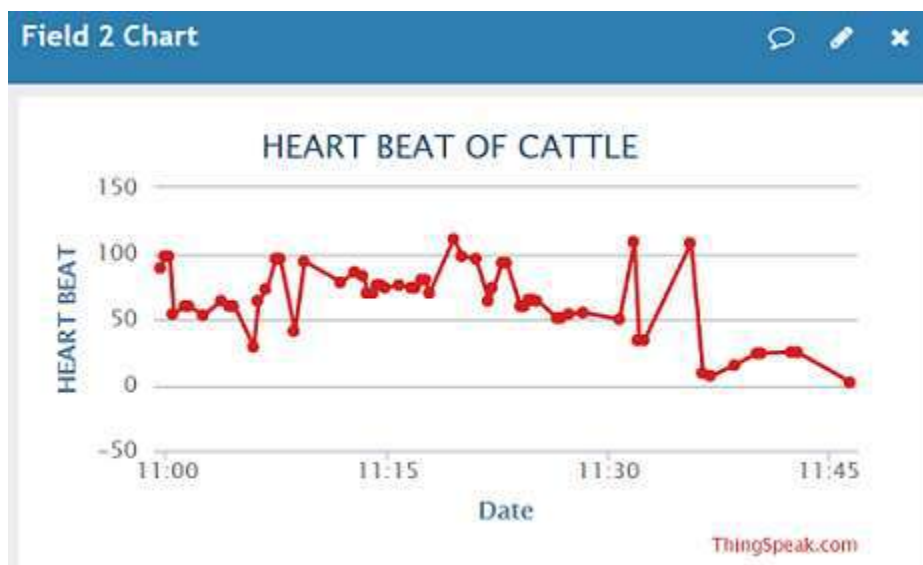


Figure 4: Heart Beat Of Cattle

The GSM is utilized to notify the farmer with SMS when there's any irregular change in the wellness of the livestock.

5. CHALLENGES

- Low quality sensors: If the caliber of the receptors utilized isn't satisfactory, the data gathered with it won't be dependable.
- Applicable only for vast scale dairy farming: The proposed strategy is fitting just for substantial scale steers cultivating as doing this specific framework for little scale cows cultivating will prompt the sustenance wastage of assets
- Initial cost is truly high: The establishment cost of the strategy is amazingly expansive as it gives a lot of sensors
- Unexpected accidents: Though data investigation helps in predicting issues, surprising mishaps can't be anticipated

- Partial Automation: Though the devices could be computerized which will bring down labor, total mechanization can't make sure as despite everything it requires hand help and control.

6. CONCLUSION

This paper reviews natural checking and health of domesticated animals and furthermore so as to screen spot of the cows. We propose that IOT based Cattle health and condition observing item should be set on ranches to gather environmental parameters that will consequently encourage ranchers in checking the creatures from outside the homestead. The proposed procedure actualizes driving edge innovation into this specific market in this way even novices can work pleasantly. The gadget will adequately actualize sensors to screen the and day by day errands of the cows to assemble data on standard premise. This data is cautiously broke down making utilization of the program and afterward required



measures are taken to deal with the dairy cattle. With the help of the proposed technique it's doable for the cultivators to foresee the conduct of creatures in a couple of conditions and perceive sicknesses the dairy cattle could get in the primary stages itself accordingly the turmoil might be distinguished just as keep the spread of its to different animals in the ranch. The program appropriately actualizes most current innovation for draining the milking the cows.

REFERENCES

1. Ms. Amruta Helwatkar, Daniel riordan (2014) "Sensor Technology for Animal Health Monitoring" in the 8th international conference on sensing technology held at Liverpool, UK.
2. Ms Meenakshi.M, Snehal S Kharde (2016) "Advance Cattle health monitoring system using Arduino and IOT" in the international journal of Advanced Research in Electrical, Electronics and instrumentation Engineering ISSN: 2278-8875.
3. Swathi Ramnath, Abhishek Javali, Bhumika Narang, Pallavi Mishra, and Sudhir K Routray, —IoT Based Localization and Tracking], International Conference on IoT and Application (ICIOT), 2017, Page(s):1-4
4. Anitha Ilapakurti & Chandrasekar Vuppapapati,. "Building an IoT Framework for Connected Dairy", In 2015 IEEE First International Conference on Big Data Computing Service and Applications (Big Data. Service), 2015, Page(s):275-285
5. S. Jegadeesan, Dr. G. K. D. Prasanna Venkatesan, "Smart Cow Health Monitoring, Farm Environmental Monitoring And Control System Using Wireless Sensor Networks", International Journal of Advanced Engineering Technology, Tamilnadu, Vol. VII/Issue 1/Jan.-March.,2016.
6. Anselemi B.Lukonge, Dr.Shubi Kaijage , Ramadhani S. Sinde, "Review of cattle monitoring system using wireless network", International Journal Of Engineering and Computer Science ISSN: 2319-7242 Volume 3 Issue 5, May 2014.