

CATTLE HEALTH MONITORING AND TRACKING SYSTEM

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Abstract: *Health monitoring of dairy cattle plays a vital role for increasing the dairy products supply worldwide. Nowadays farmers are showing less interest in dairy sector as animals are suffering from various ailing health issues, unpredictable killing diseases, and advanced breeding costs. Many dairies contain large number of cattle's. Therefore it is too difficult to take care of them and to monitor routinely the health of dairy cattle. So this work is very adamant 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 this 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 center. This reduces the minimal health inspection and long term animal healthcare cost. Currently, precision dairy monitoring technologies (PDMT) are gaining interest. Therefore, it is necessary for farmers to adopt efficient technical methods for cattle health monitoring. When designing an IOT-system, often various technological alternatives are available (e.g. communication technologies, types of sensors). Although this choice set can be narrowed down by mapping the functional and technical requirements on the technical specifications of the technologies, chances are that even after this step multiple alternatives are still feasible. In this work, we describe an IOT system design methodology that also takes into account strategic and economic considerations. As a result, the choice set of feasible technologies can be limited to feasible alternatives that are also the most economic and strategic choices. This monitoring system needs to be installed in local and remote locations of farms that will assist the concerned farmers in monitoring their cattle activities from diverse locations for the whole day. All collected factors from the automated systems will be stored in a database. Subsequently, With the help of farm automation, farmers can retrieve information for the execution of correct farm control strategies. This revolution in advanced technological farm automation will aid in improving the productivity rate with the reduction of human intervention. This review study concludes all cattle monitoring system along with various issues and challenges.*

I. INTRODUCTION

A major portion of dairy farms contributes to betterment economies of developing countries including India. Production of dairy products is wholesome for food industry worldwide. For any progressive as well as progress countries, Agriculture play crucial role or we can say that it acts like

Backbone of such countries. At present agriculture besides farming includes forestry, fruit cultivation, dairy, poultry, Bee keeping etc. Out of this scale of dairy farming has been changed worldwide over recent year with a move toward larger, more intensive, profit driven enterprises, primarily due to market pressure and demanding of milk products. This has been leads in demand for technologies such things can be achieve by using farm automation and advanced technology. Nowadays farmers are showing less interest in dairy sector as animals are suffering from various ailing health issues, unpredictable killing diseases, and advanced breeding costs. Many dairies contain large number of cattle's. Therefore it is too difficult to take care of them and to monitor routinely the health of dairy cattle. So this work is very adamant to the owner of dairy and regional authorities. Major problem in cattle farming are unable to detect illness at early stage. If initial illness not treated properly it will developed as major disease. And can be spread to all others cattle. It leads to death and capital loss. The frequent occurring killing diseases in cattle such as foot and mouth disease (FMD) hurdles the condition of farmers which directly impact national economies of many developing countries. There are other epidemic outbreaks in domestic animals such as bovine mastitis, anthrax, contagious bovine abluton, and black quarter (black hg) which also prevails basil FMD. In order to tackle these diseases, it is necessary to implement farm scientific technology for the monitoring of dairy animal health to reduce the production costs. In last two decades an important aspect of farm automation that is being researched is area of automated animal health monitoring system. 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 this paper we will be focus on monitoring the health of cattle's by using, low cost sensors technology that detect sudden change in body parameter like temperature, blood pressure etc. The parameter that is taken by sensors are access by using wireless technology collected data used for early detection of disease this things are going to develops by using IOT. The function of sensors is to gather information about diseases and to reduce long-term animal dairy health care costs. Cattle health monitoring system can be used via a management platform farmers are able to monitor the data of their cows and to keep cow journals. If specific parameter thresholds are exceeded, the platform will alert the farmer. Also animals can be located exactly within the farm area via the platform. This comes in handy whenever a farmer must look for a specific animal. The mobile application allows to scan the ear tags in order to identify a specific animal. Data history and the cow journal can be accessed via the app. The app can also be used to locate animals.

II. PROBLEM STATEMENT

Major problem in cattle farming are unable to detect illness at early stage. If initial illness not treated properly it will developed as major disease. And can be spread to all others cattle. It leads to death and capital loss. In order to tackle these diseases, it is necessary to implement farm scientific technology for the monitoring of dairy animal to health to reduce the production costs. The function of sensors is to gather information about diseases and to reduce long-term animal dairy health care costs.

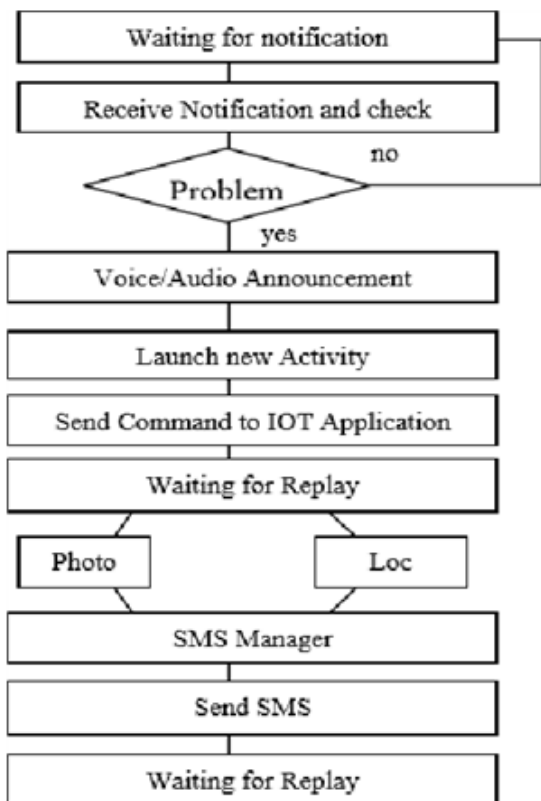
EXISTING SYSTEM

Even though system exist there is no real-time animal health monitoring system in market Most of the veterinary determines the physiological and behavioral parameters manually Robustness of installed device on cattle. Cattles are not often comfortable with too many devices. These methods need deployment cost and enough spaces to set the sensors.

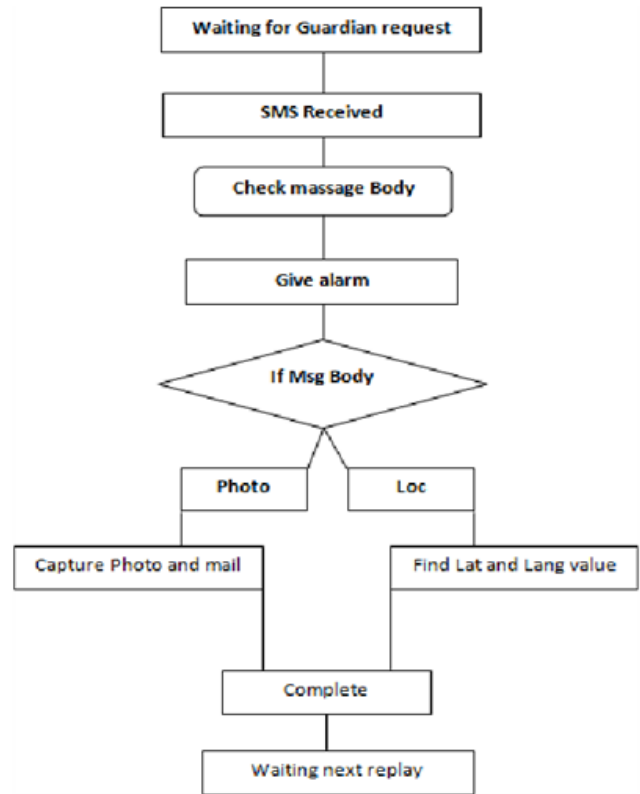
PROPOSED SYSTEM

Currently, precision dairy-monitoring technologies (PDMT) are gaining interest. These systems allow to monitor cow health and automatically detect any abnormalities occur. If it occur in cattle then sends an voice notification to owner and wait for owner message Then, if problem occur and send message occur to an IOT application produce an alarm and checks message body and then it sends an accurate photo captured and mail to the owner or sends a location to the owner. And also those data is stored in cloud or database.

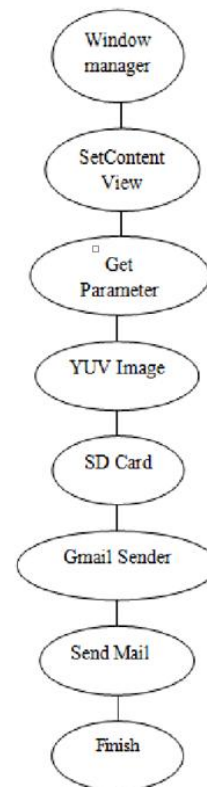
Guardians side Application



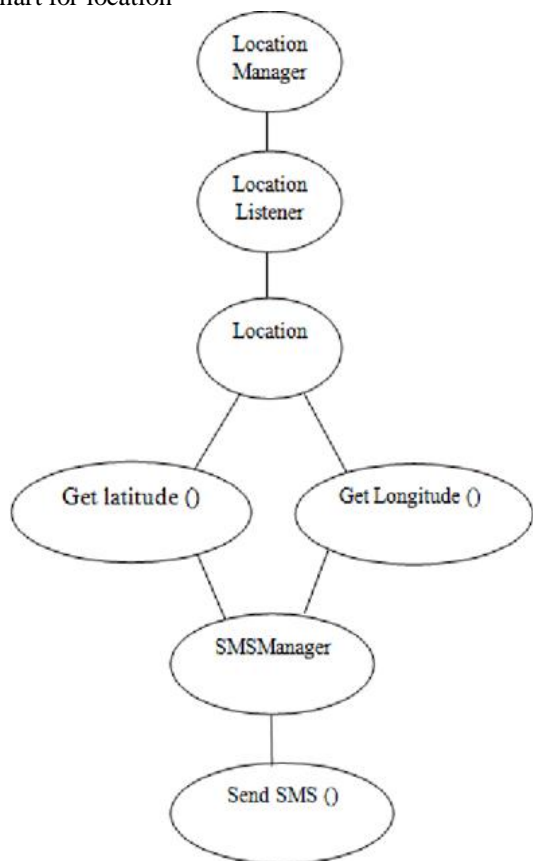
IOT SIDE APPLICATION



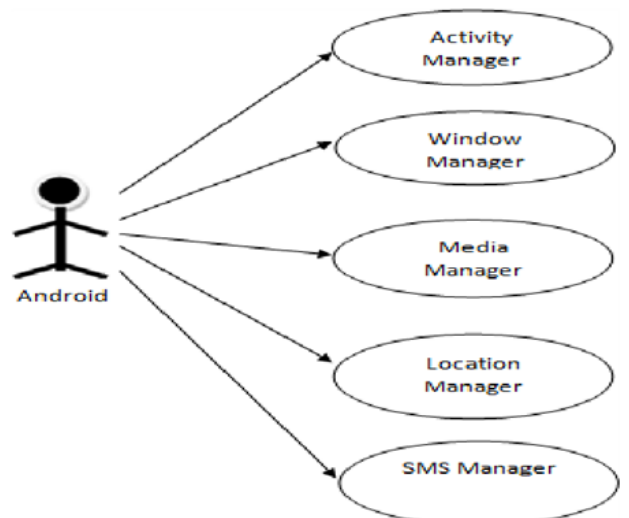
Flowchart for photo and mail



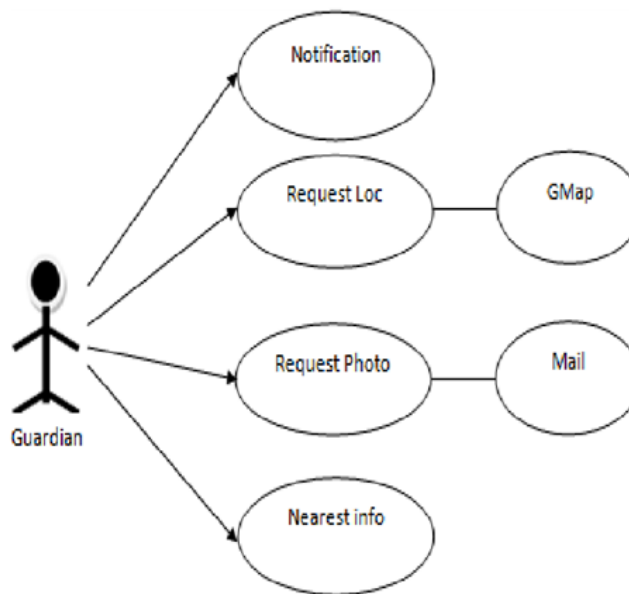
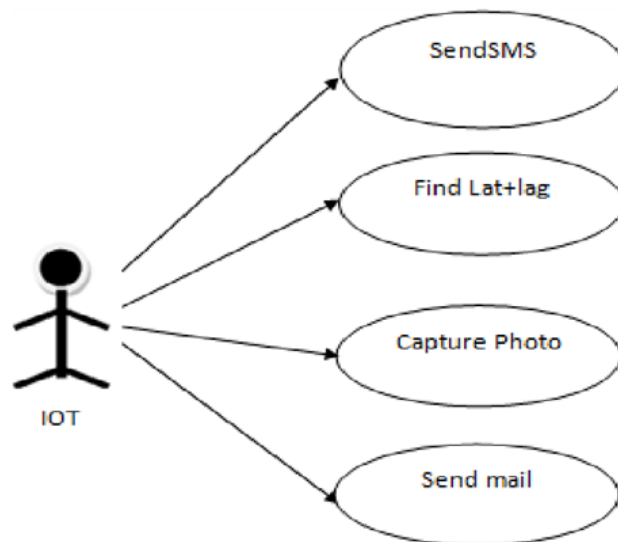
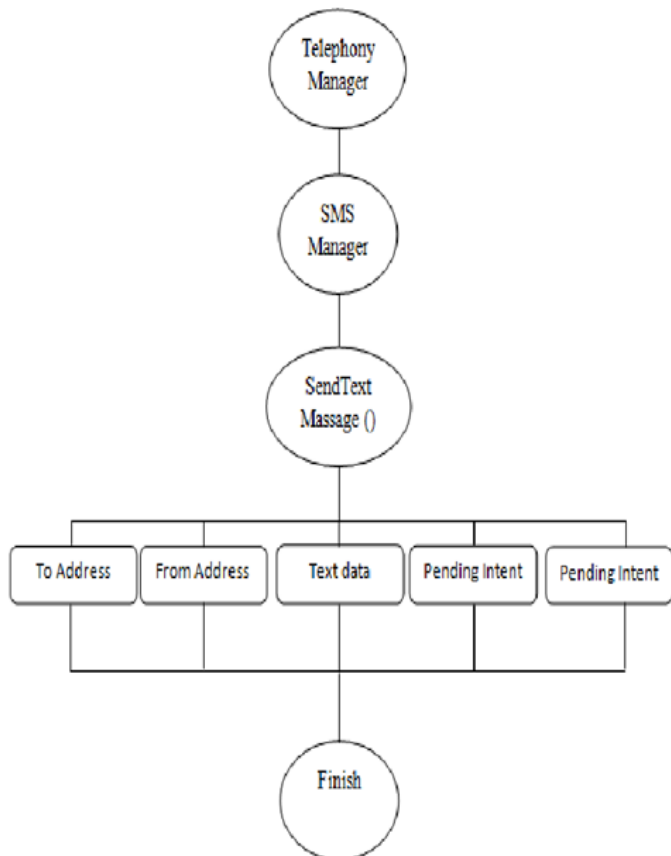
Flowchart for location



Use Case Diagram



Flowchart for SEND SMS



III. METHODOLOGY

PDMT - precision dairy-monitoring technologies. Sensed values from wearable devices such as collar, smart ear tag, temperature sensor will be collected all data and sends to cloud or database .

- 1) And these sensed values will be send to an micro controller with the help of serial communication and also displayed on LCD (Liquid Crystal Display).
- 2) To give power for module an power supply is used to charge to keep active state.
- 3) Therefore cattle health monitoring system helps to detect diseases earlier stage and give accurate information of the cattle which is suffering from abnormalities by mailing a captured photo or location to the owner.
- 4) The sensors used here does not harm the cattle because it does not emit radiation.
- 5) And also these information which is send to the owner android phone in which android application built in an owner phone.

SYSTEM ARCHITECTURE

Currently precision dairy-monitoring technologies (PDMT) are getting interest. Doing so a PDMT can be able to detect abnormalities on an individual cow level Activity monitoring must include following metrics: Travelled distance per day, social behavior, lying time per day, eating and drinking time Temperature monitoring is required to detect fever. Temperature will be monitored at the ear and at the neck. A central backend system will combine and analyze the data, resulting from the various sources, in order to detect anomalies and irregularities in the daily activity and health patterns of the animals. A dairy farmer must be able to scan and identify an animal via the mobile application.

EXPERIMENTAL RESULTS



The cattle health monitoring system is used to give notification to the farmer or owner if any abnormalities occur to the cattle. Because if any abnormalities occur no precautions as be taken within 24 hours then it may lead to disease occur and still treatment as not provided to cattle then it lead to cattle death. Therefore, if abnormalities found in cattle then an voice notification is sends to an owner phone and wait for owner message. And also if any message received from owner then alarm produced and check message body and finally send a location or mail a captured photo of abnormal cattle to the owner and wait for next replay. By this, initially precaution can be taken and avoid cattle death

and leads to cattle healthy.

IV. COMMENTS AND CONCLUSIONS

The goal of the system is to reduce various costs related to common dairy diseases, and localization and identification of animals. Our research indicates that reduced amount of discarded milk, reduced cost for veterinarian assistance, reduced costs for animal replacement and labor time reduction.

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