ANIMALS TRACKING SYSTEM USING GPS WITH GSM

Yussra Said Al-Harbi[#1], Marwa Aamir Al-Aghbari [*2], Dr.V.Mathivanan [#3]

Department of Information Technology,
University of Technology and Applied Sciences, Ibra,
Sultanate of Oman
[1]36J173574@ict.edu.om
[2]36J172074@ict.edu.om
[3]vmathi@ict.edu.om

INTERODUCTION

Abstract **–**

Nowadays, the earth is facing an environmental crisis that affects the living area of the animals and makes them in danger of extinction. The main purpose of this project is to create a tracking system for wild and domestic animals. This project helps to monitor the movement of the animals and their body conditions. This device needed in a situation where we have wide spaces such as nature reserve in which the animals needed to track their movement and monitor their vital signs to understand whether the animals in normal condition or not, and to know if that animal died.

Keywords: Tracking system

I. INTRODUCTION

Statement of the Problem / Project

Due to the growth of human society, there are many animals in danger of extinction. So this paper will explain how the animal tracking system will help in the animals' extinction problem. This project is used for tracking the animals and their location. And also the project is used to protect animal's life from the extension; it's used to monitor animal's movement and health; also, we used temperature sensors to monitor animals' body temperature to identify whether the animals are sick or died. This project enables to track animals, so any animal gets out of its zoo or nature reserve the system will send message or warning to the responsible person by Global system for mobile communication (GSM) and detect the animal location by the Global positioning system (GPS). Moreover, the system has a feature to measure the temperature of the animals.

II. LITERATURE REVIEW

By tracking animals in wide places we can find essentials information like biological information. To monitor and control the animals which have more chance to spread or cause diseases, by knowing their places and this will help to reduce the amount of the diseases that the animals can help to spread them or even cause them. ARGOS program could be used to study dispersal and migration of the animals [2]. In this paper, they discuss that we can use RFID (Radio-frequency identification) technology to track small animals to analyses their behavior, every RFID device, and program control should be tailored for a specific application. They test this tracking system on phantom mice to ensure the ability of this tracking system according to the result and the effectiveness of the system.

III. OBJECTIVES

The main objective of this project is to determine the location of the animals and if that animal gets away from its specific place, this system will send a message to the responsible person and it will detect the location of that animal. And also, it will calculate the body temperature of the animals to identify that the animal is sick or died.

IV.RESEARCH METHODOLOGY

The project was implemented by creating a prototype refer figure 1 using the Arduino ESP32-CAM, Temperature Sensor, and GPS Antenna module. These components were integrated through a solderless breadboard and connected using jumper wires. Temperature Sensor measures animals' body temperature to identify whether the animals are sick or dying by sending the temperature as input to the Arduino ESP32. Also, the GPS Antenna module monitors the animals' location and movement. If animals move far from the specific area, automatically the device will send a warning to the responsible person by sending a message through the SIM using the stored mobile phone number in the microcontroller.

- To identify and track the animals
- Measures body temperature of the animals to understand its situation like normal/died/sick

Academic, Scientific and/or Innovation Significance

Earlier systems used a wireless belt that is tied on the animal's neck with a wireless transmitter. The respective person will get wireless signals from the animal's belt. This technology has supported some extent (The range of the wireless transmitter). Some sensors cannot be used to track animals in long-distance [5]. Therefore, the present system is using GPS and GSM technologies to track the animals and their body temperature to understand its health condition as shown in figure 1.

V. PROTOTYPE

Figure 1: Prototype of animal tracking system

VI.BLOCK DIAGRAM

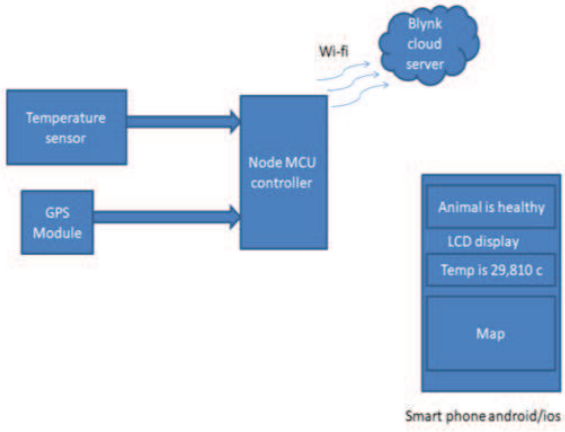

Figure 2 Block diagram of Animal tracking system

Table 1: Component List

Sl.No	Name of the components	Type
1.	Temperature sensor	LM35 DS18B20
2.	Node MCU (Micro controller	EXP-32-CAM
3.	GPS and GSM Module	SIM 900
4.	PCB Board	6" X 4"
5.	SIM)	(Omental or Ooredoo
6.	Jumper wires	Male to Male Female to Female Male to Female
7.	Bread Board	Standard Size Mini Size
8.	Multi-meter	Digital Multi-meter
9.	Soldering Iron with lead	35 watts
10.	Lead acid battery	9v
11.	Battery adapter terminal	

This project was developed for tracking of animals using GPS model and monitor their movement and vital sign (body temperature) using NTC model and send message using GSM model using the components list shown in the table 1 using block diagram figure 2. And also this projects are used to track the animal location and sending message to respected person that will contain the longitude and latitude. Moreover, if the animal had no or up normal temperature the system also will send a message to the responsible person

VII. BENEFITS

* Easy to track Domestic / Wild animals
* Missing animals will be identified easily
* Medical assistance will be provided sicked animals
* Identify the location of the animals
* This system will be used to calculate the living animal details.

VIII. CONCLUSION

There are many animals that are in danger of extinction because of many reasons. So as a result of that, we develop this project to make it easy to track and monitor the movement and vital signs (body temperature) of animals, to protect the animals from any danger that could happen. The project will send a message for the responsible person that contains the longitude and latitude and the body temperature of the animal, through that the responsible person can behave quickly in case that the animal is in danger to save the animal life.

RECOMMENDATION

For future development, we can add more parameters to monitor health of animals by adding sensors of vital signs such as heard beats, bold pressure, breathing rate and etc.

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