

## Wildlife monitoring system using zigbee

Prof.Gujar. M. P.<sup>1</sup>, Vilesha Bhandirge<sup>2</sup>, Namrata Chavan<sup>3</sup>, Shraddha Chavan<sup>4</sup>.

<sup>1</sup> Assistant Professor, Department of Electronics and Telecommunication Engineering, Dr. Daulatrao Aher College of Engineering, Karad, Maharashtra, India.

<sup>2,3&4</sup> Student, Department of Electronics and Telecommunication Engineering, Dr. Daulatrao Aher College of Engineering, Karad, Maharashtra, India.

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**Abstract** - Animal detection plays a vital role in day to day life. It is important to detect the presence of animals entering into the human living areas near the forest, since it causes damage to life of people living near by the forest areas. Some animals also undergo some disease, if they met with some accident or are hurt then we have to cure their wounds, in such cases we need to catch those animals and do the required treatments. Main problem in such situations is that in large wildlife sanctuaries these animals are really hard to locate. Due to this many times we have to search the entire area. To avoid such problems we are implementing a project called "Wildlife Monitoring System". In this project temperature sensor used to monitor health of animals. To track the location of animals GPS system used. Temperature and location will be display on LCD and also this data send to particular mobile using Bluetooth.

**Key words:** Tracking system, Zigbee, Bluetooth, Sensor, Wireless Transmission.

### Introduction:

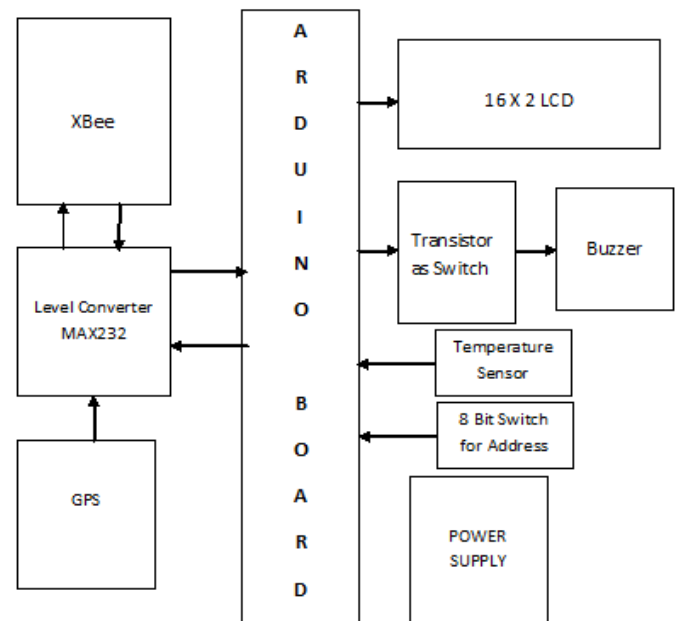
As human race or human society is growing, the wildlife animals or wild animals are in danger. But as per nature's rule, every living creature on this earth is important and has important role in ecosystem. Also we get some medicines or useful drugs from some animals. We have already realized this, so in every country we see that there are wildlife animal reserves and national parks where these animals can live freely in forest or in a jungle however these are monitored by human beings. But these animals also undergo some disease or there can be some situations where human being attention is required for these animals like vaccination of these animals. If they met with some accident or are hurt then we have to cure their wounds, in such cases we need to catch those animals and do the required treatments. If animal moves inside the animal reserves for forest then the particular variable location parameters are received. We also use a temperature sensor in this project, if the animal has fever or if there are some wounds on animal body and because of wounds temperature of animal rises then we can send sms to the forest officer so he can give immediate attention. This tracking system can inform you the location

of animal. It enables us to track target in any weather conditions. This system uses GPS and Bluetooth technologies and enables simultaneous tracking of thousands of animals with transmitters.

### Objective:

The main objective of this project is to protect wildlife within park boundaries. To passively support the conservation of native animals using low cost engineering technology and animal welfare.

### Block Diagram:



### Block Diagram Description:

#### Temperature sensor:

We have used temperature sensor to detect the body temperature of animal. Temperature sensor is an analog sensor. Which means it gives variable voltage as per the variation in the body temperature.

### Arduino:

This is the important block of this project. It performs various functions like, reading co-ordinates from GPS modem. It finds out the longitude and latitude from this data. Sends command to the XBee modem for sending data.

### Zigbee Modem:

DigiXBee is the brand name of a family of form factor compatible radio modules from Digi International. The first XBee radios were introduced under the MaxStream brand in 2005 and were based on the IEEE 802.15.4-2003 standard designed for point - to - point and star communications at over - the - air baud rates of 250 kbit/s. Two models were initially introduced — a lower cost 1 mWXBee and the higher power 100 mWXBee-PRO. Since the initial introduction, a number of new XBee radios have been introduced and an ecosystem of wireless modules, gateways, adapters and software has evolved.

### GPS Modem:

We have used GPS modem to retrieve and longitude and latitude of the location. This GPS modem communicates using serial communication with the Arduino. GPS modem sends a bunch of data to the Arduino. This bunch of Data contains many parameters which include longitude and latitude.

### Bluetooth:

Bluetooth is a wireless technology standard for exchanging data over short distances from fixed and mobile devices, and building personal area network. The standard range of Bluetooth is approximately 100 meters or 328 feet.

### LCD display:

It is used to show various messages on LCD. Although LCD does not have much use in actual application but still it is really very useful for testing purpose and while developing this project. Because we can show various messages like: Sending data or we can display longitude and latitude of current location on LCD display.

### Conclusion:

In this paper we discussed the animal health monitoring system using Zigbee. This method is efficient than monitoring each animal separately. There by decreasing the possibility of epidermis in human and animals .A prototype of an animal health monitoring system is presented. The prototype system consists of the sensor module. This project may be implemented in the wildlife

sanctuaries in addition to this fire accidents in the forest also be stopped by alerting the concern persons. It will be specifically targets health monitoring during races, animal location and tracking applications. This technology presents very low power consumption, low Complexity and time domain resolution.

### References:

1. E.S. Nadimiab, H.T. Søggaard, T. Bakb, F.W. Oudshoorna, "ZigBee based wireless sensor networks for monitoring animal presence and pasture time in a strip of new grass", Computers and Electronics in Agriculture, vol. 61, pp. 79-87, 2008.
2. Lewis collier, Daniel Taylor, "Automated Wildlife Monitoring using Self-Configuring Sensor Networks Deployed in Natural Habitats".
3. R.N.Handcock et al, "Monitoring animal behavior and environmental interactions using wireless sensor networks, GPS collars and satellite remote sensing", Sensors, vol.9, no.5, pp. 3586-3603, 2009.
4. P.D.Meek, A. Pittet "User based design specifications for the ultimate camera trap for wildlife research".

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