

# INNOVATIVE PRODUCTION OF TREES IN NURSERY FROM THEFTS USING RFID AND SENSOR

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## ABSTRACT:

This paper presents a model of preventing smuggling of valuable trees like sandal trees, red sandal trees in the forest area. In proposed system in order to detect cutting down of valuable trees immediately, we use vibration sensors and continuity sensors. Here vibration sensor is used to sense the vibration created during cutting down the tree and continuity sensor is used to check the continuity between neighbouring trees. In existing system, RFID is used to identify the missing tags in the tree. This system proposes an intelligent system to track the detection of illegal smuggling of trees in forest. Existing system makes use of various technologies such as RFID, Wifi etc., RFID based systems lack in rain if passive taxes are used or lack in cost effectiveness. Similarly, wifi based systems becomes costlier and require constant network connection. Hence this project proposes a wifi based tracking system. The stationary wifi transceiver consists of ESP8266 with Arduino Uno development board which detects the mobile transceiver. The mobile transceiver detects mobile transceivers under its vicinity and sends the data to other stationary transceiver and ultimately the data stored in data base

**Keywords:** *RFID Reader, ESP8266, wifi.*

## 1. INTRODUCTION:

Forest constitute approximately 30% of the global land area. They provide habitat for both humans and some species that share the valuable eco systems goods. Managing a forest has become an extremely hard task . Illegal logging represents one of the biggest challenges of forests sustainability. Smuggling of sandalwood has created socio economic and law and order problems in area bordering in India. Trees which are mostly affected include sandal wood, teakwood and rosewood. The most promising resolution is – “Protection of valuable trees from smuggling using RFID and sensors” which will be a robust, valuable and realistic technology for

monitoring. A SMART automated unit has been thus devised to tackle these issues. The combination of latest wireless communication systems and Embedded solutions offer us such modules. Each tree should have one little Embedded system- unit with: sensors and RFID tags. The nearness of above said parts will send the current state of the tree to the server , utilizing wifi module . The information sent is as information string\outline by means of Internet , henceforth IoT organize is shaped here . The information outline is deciphered by the BLYNK APP which keeps up the data of every such single tree. Forests constitute approximately 30 % of the global land area.

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## 2. LITERATURE SURVEY

[1] IOT Based Anti-Poaching Alarm System for trees in Forest using Wireless Sensor

Networks: In this paper a system which can be used to restrict smuggling. The design system uses three sensors tilt sensor, temperature sensor, sound sensor. Data generated from these sensors is continuously monitored with the aid of Blynk App. With respect to the sensors, their output devices are activated through relay switch. For tilt sensor and sound sensor a buzzer is activated and for temperature sensor a water pump is activated. Generated data is stored in Blynk Server over the Wi-Fi module. Forest officials are notified when any event occurs so that appropriate action can be taken.

[2] Design of a WSN node forest trees against poaching: This paper propose a microcontroller based antipoaching system employing WSN technology, which is capable of detecting theft by monitoring the vibrations produced by the cutting of trees/ branches using a 3 axis MEMS accelerometer. WSN is widely used technology in remote monitoring applications. Due to nature disaster some trees may fallen and create some sounds for that purpose they are using GPS module for continuous monitoring of trees location.

[3] Forest Monitoring System Using Wireless Sensor Network: This project presents a system for monitoring forest and its vicinity based on IOT based wireless sensor network technology. This system need to be able to accurately monitor forest cover and quality is crucial to understanding the costs of deforestation. This project is an attempt to prevent forest mishaps, the intrusion of animals in the surrounding forest areas, illegal activities in the forest by using wireless sensor technology and eliminating manual power t the highest possible extent.

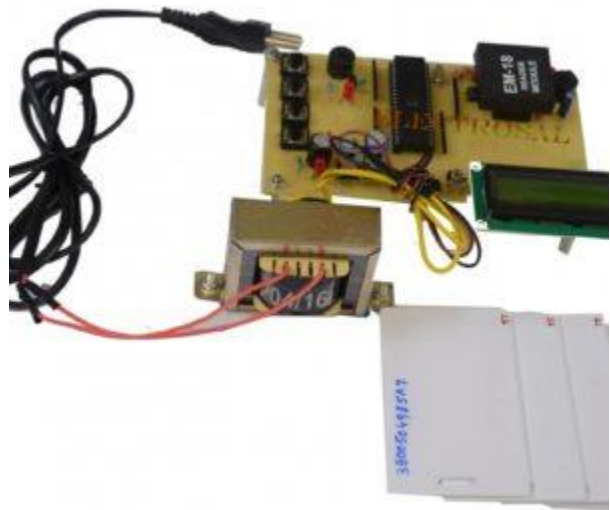
## 3. METHODOLOGY

The proposed system is made up of sensors and RFID along with wifi module technology.

Metal sensor, flame sensor, vibration sensor are the primary sensor used in the system. The flame sensor is used in the board to detect the wild fire and intimates the same to the concerned authority through blynk application. The vibration in any tree is detected by vibration sensors and metal detector detects and alerts when the tree is touched by a metal. In all the cases, the position of the tree is sent to the concerned authority through SMS/email. The android app can be developed to display the received data.

### Operation:

The proposed system consists three sub-sections namely tree unit, sub-server and forest officer unit. Sensor which is fitted on tree is tree unit, control section consisting sub-server unit and finally the forest officer mobile phone or personal computer is the forest officer unit. Tree unit consists of vibration sensor, continuity checker and zigbee. Sensor is a device which is able to transform physical readings collected from environment into signals that can be measured by a system. In our system, vibration sensor is used to detect the vibration level of tree. If any person tries to cut the particular tree, then the vibration level of tree will be high. The vibration sensor triggers the microcontroller while its value exceeds its threshold value. Continuity checker is used to link all the trees in a network. If the tree is cut down without any vibration then we are able to find out it with this continuity checker. The tree unit is fitted in many trees and continuously monitoring the status of sensor, and if any events (tree cut) occurs then one or all of these system detect this and then wirelessly sends this to sub-server unit. In our proposed system, zigbee is used to send information wirelessly.



The result obtained is shown in bylnk app. The results obtained show fire detection, vibration detection , deforestation and illegal movement in the forest area and display on the users phone. Hence this project will help to over come the problem and protect the forest. The summary of the proposed system is to protect the trees from smuggling and to protect the forest from the fire. By this method the deforestation can be reduced and enable the forestation. The main goal of the system is to enhance forest management efficiency and decrease trees logging cases. Thus , from implementation of this project eco system is maintained balanced.

### CONCLUSION

The theory was completed to abstain from carrying of valuable trees in secured zone in woods. There are numerous approaches to secure trees yet here is a brilliant technique for interfacing a few sensors around trees with a iot device was done. Through each tree as a smart tree and bringing numerous such trees under a system. The structure we are making in the backwoods where the tree are exorbitant

and their security is basic reality. Here we are given such sort of system.

### Future Scope:

The system monitors when the tree logging occurs, the sound generated due to axing the tree is sensed by the sound sensor. Also if the tree bends, the buzzer is activated. And if in case forest fires, when the temperature of the surroundings increases its sensed by the temperature of the surroundings increases its sensed by the temperature sensor, through the relay switch the water pump is turned on. Then this generated data is send to the forest officer if any event occurs so that appropriate action can be taken.

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