FOREST INNOVATION PROTECTION OF TREES FROM SMUGGLING

M. Indira

Assistant Professor

Dept. OF ECE

TKR College Engineering and Technology, Meerpet, Hyderabad

Gundemoni Anil, Navoth Niharika , Pardesi Aashish Singh, Vadla Shiva Kumar

ABSTRACT:

Tree protection in forests is of paramount importance due to its multifaceted significance.Trees serve as vital carbon sinks,mitigating climate change.They sustain diverse ecosystem,supporting various flora and fauna.Trees also prevent soil erosion insure water conservations and contribute to clean air.Preserving trees in forest is essential for maintaining ecological balance,biodiversity,and the overall health of our planet.This project focuses on forest conservation throught an advanced sensor system.

Touch, Fire,Metal and Vibration sensor are strategically place to monitor tree cutting,touching,fire outbreaks,and presence of metal machinery,when triggered,these sensors send real time data via Bluetooth notifications to a central control hub.This enables swift response to threats,aiding in the protection and preservation of forest against various hazards

INTRODUCTION:

Forests are the lungs of our planet, vital ecosystems brimming with biodiversity that play a crucial role in maintaining ecological balance. They absorb carbon dioxide, mitigate climate change, provide clean air and water, and harbor countless species. However, these vital ecosystems face a multitude of threats, including illegal logging, poaching, wildfires, and land use changes. These threats not only jeopardize the health of the forest but also have cascading consequences for human well-being and the environment at large. From many days we are reading in the newspapers about the smuggling of precious trees like sandalwood, teakwood, rosewood etc. These trees are very costly. These are mostly useful in the medical sciences and cosmetics. Because of huge amount of money involved in selling of such tree woods illegal activity like smuggling is taking place. There have been several initiatives undertaken by different stakeholders and in particular by the Government of India, to mitigate these problems. These include the recruitment, training and deployment of anti-poaching watchers and private or government security guards across forests. Strict punishments for convicted offenders, as well as giving special incentives for anti-poaching activities were aimed for eradicating the menace. However, the punitive measures have remained largely ineffective. This problem isn't related to India only. China, Australia and African countries are also struggling with same issues.

Therefore, safeguarding forests necessitates innovative and effective solutions. While traditional methods of forest protection have played a crucial role, technological advancements offer exciting possibilities to enhance these efforts. This project delves into the potential of Bluetooth technology as a tool for forest protection, aiming to explore its unique capabilities and contributions towards a more sustainable future for our forests

REVIEW OF LITERATURE SURVEY:

The literature survey on forest innovation for protecting trees from smuggling using Bluetooth technology appears to be an intriguing approach. Bluetooth technology can provide real-time tracking and monitoring of trees, aiding in the prevention of illegal logging and smuggling. The survey should cover existing studies on the effectiveness of Bluetooth in forestry management, including its implementation, challenges, and potential benefits.

It's crucial to assess the reliability and accuracy of Bluetooth technology in rugged forest environments and explore how it integrates with other surveillance methods. Additionally, the survey should highlight any policy implications and the potential for scaling up such innovative approaches to combat illegal logging globally.

ANALYSIS AND DESIGN:

PROPOSED SYSTEM:

The purpose of this project is to save valuable trees like teak sandalwood ,etc . Whenever the smuggler try to cut the trees vibration sensor senses the vibration during they cut , the controller read and gives an alert .The forest guard will see the information on the mobile app and the system will alert the responsible person and necessary steps taken by them.

WORKING METHODOLOGY:

Clearly define the scope and objectives of the project, specifying the target areas and the desired outcomes in terms of tree protectionUtilize data analytics to identify patterns and trends in illegal logging, helping authorities target high risk areas more effectively. Launch campaigns to educate the public about the environmental and economic consequences of illegal logging. Building public support can lead to increased vigilance and reporting of suspicious activities Identify and designate specific areas as protected zones to ensure heightened security and monitoring.

This discourages smugglers and focuses resources on critical regions. Provide training for law enforcement, forestry officials, and local communities on the identification of illegal activities, sustainable forest management, and the importance of reserving biodiversity.

BLOCK DIAGRAM:

The block diagram for the Forest Protection using Bluetooth project can be divided into three main sections:

1.Sensor Section:

This section consists of various sensors that are deployed in the forest to collect data about the environment. These sensors may include: o Temperature sensors o Humidity sensors o Light sensors o Motion sensors o Smoke sensors o Acoustic sensors (to detect sounds like gunshots or chainsaws)

2. Bluetooth Module:

This section is responsible for transmitting the collected sensor data wirelessly to a central monitoring station. Each sensor node will have its own Bluetooth module for communication.

3. Central Monitoring Station:

This section receives the sensor data from the Bluetooth modules and processes it to identify an y anomalies or potential threats to the forest. The central monitoring station may consist of: o A computer or microcontroller o Software for data processing and visualization o An alarm system to alert authorities in case of any threats

The block diagram should illustrate the connection between these sections, showing how the sensors collect data, transmit it via Bluetooth to the central monitoring station, where it is processed and , where it is processed and used to trigger alarms or other actions.
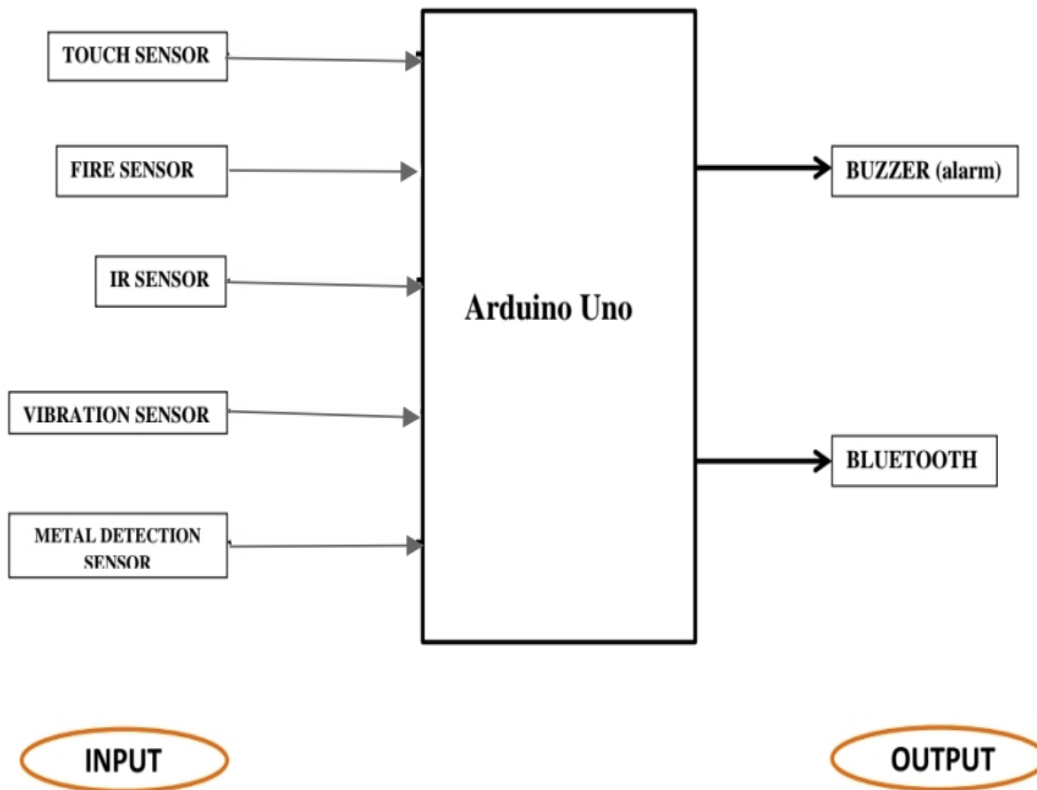

SCHEMATIC DIAGRAM

The sensors detect any unauthorized activity such as cutting or movement of the tree and send signals to the microcontroller.The microcontroller processes these signals and determines if there's a threat to the tree.If a threat is detected, the microcontroller activates the Bluetooth module to send an alert to a nearby smartphone or central control unit.

This setup helps in real-time monitoring and protection of trees by alerting authorities or relevant personnel whenever unauthorized activities are detected.
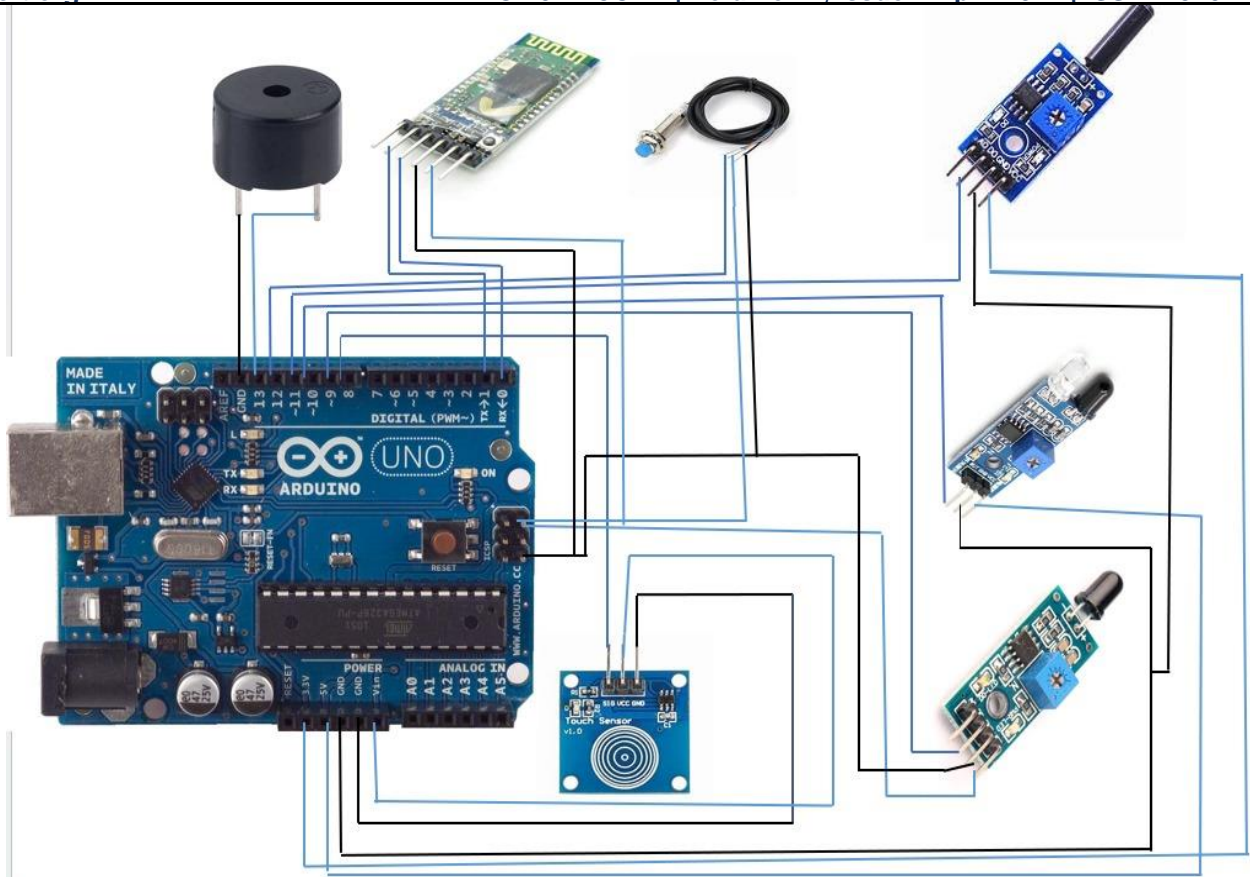
RESULT:
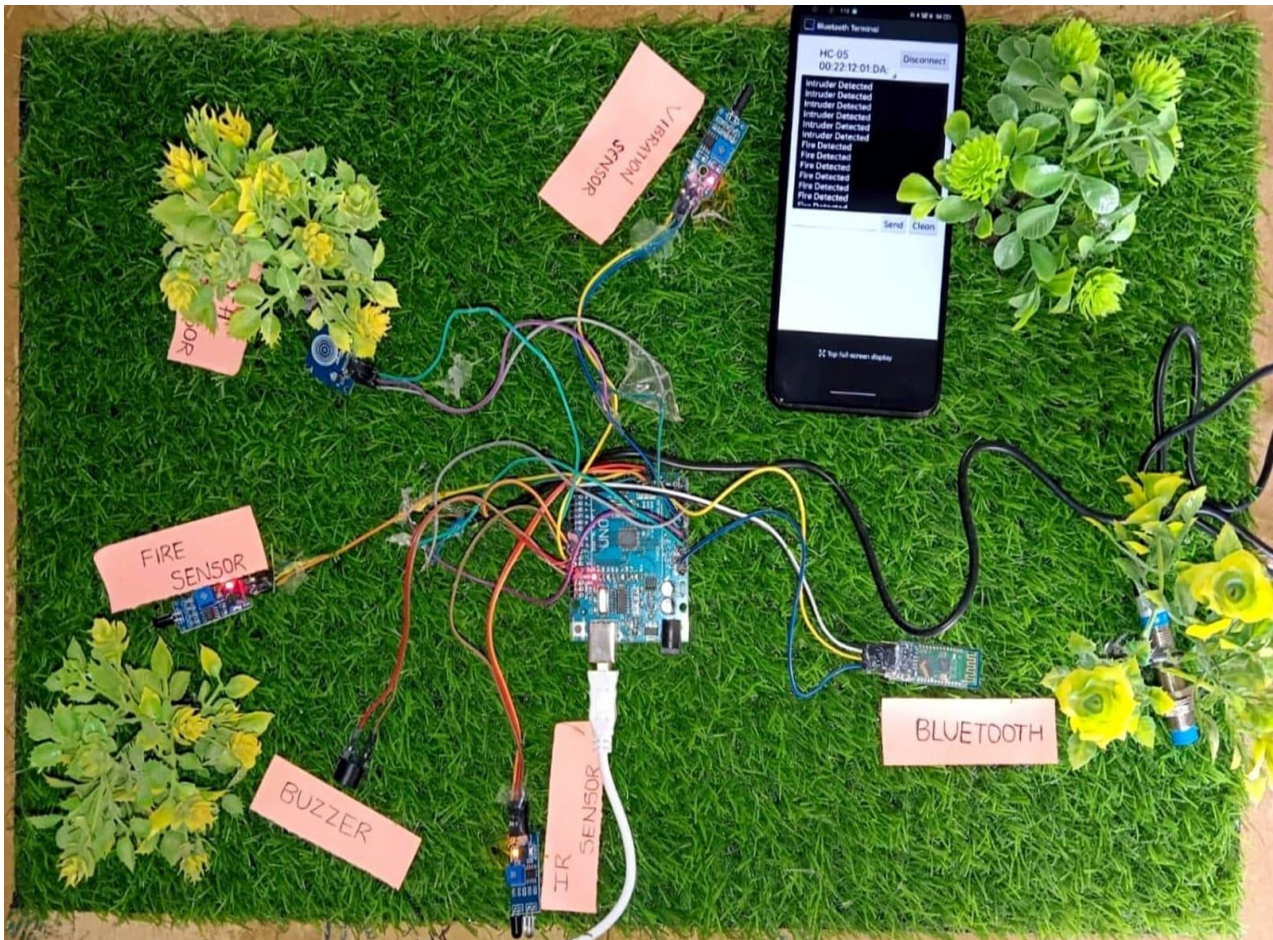
CONCLUSION:

The project exploring the use of Bluetooth technology for forest protection has demonstrated its potential as a valuable tool in the fight against deforestation and illegal activities. While still in its earlier stage.

The project has yielded encourages results , highlighting the strengths of this approach and paving the way for further development and implementation.

REFERENCES:

[1] Santhosh Hebbar, Praveenraj Pattar, Rajeshwari Madli, Varaprasad Golla, "Sandalwood tree protection using Bluetooth version 4.0", in International Conference on Computing and Network Communications (CoCoNet), December 2015. (IEEE)

[2] Suguvanam K R, Senthil Kumar R, Partha Sarathy S, Karthick K, Raj Kumar S "Innovative Protection of Valuable Trees from Smuggling Using RFID and Sensors", in International Journal of Innovative Research in Science, Engineering and Technology, Vol.6, Issue 3, March 2017. [3] Iron gaurds to protect sandalwood. http://www.thehindu.com/news/cities/Coimbatore/ iron-guards-to-protect-sandalwoodtrees/article6404284.ece

[4] http://www.siriagrigroup.com/fag/98-what-are-the-risks involved-insandalwood- plantation- and-how-does-siri-agri-grouptake-care-of-theserisks

[5] Akshay D. Sonwane, V N Bhonge, and Ajay Khandare, "Design and Development of Wireless Sensor Node for AntiPoaching", in International Conference on Communication and Signal Processing, April 6-8,20I6. (IEEE)

[6] Pero Skorput, Sadko Mandzuka, Hrvoje Vojvodic "The Use of Unmanned Aerial Vehicles for Forest Fire Monitoring", in international Symposium ELMAR, 12-14 September 2016. (IEEE)

[7] Mohan Sai.S, Naresh K, RajKumar.S, Mohan Sai Ganesh, LokSai , Abhinav, "An Infrared Image detecting System model to monitor human with weapon for controlling smuggling of Sandalwood Trees", in International Conference on Inventive Communication and Computational Technologies, August 2018.(IEEE)

[8] Prasad R, Khandar, K Deivanai, "Preventive System for Forests", in International Journal of Computer Science Trend