Real Time Forest Anti-Smuggling Monitoring System Based on IOT

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Abstract: **The motive for this task is to organize the enemy of the most important robbery structure in the Protected Forest regions. The theft and illegal development of commercial trees such as Sandalwood, Teak, Sagwan, etc. have been a concern. It is also a breakdown of Forest Flora and animals. As concerned citizens our belief system is to resist such exercises through the latest developments. These trees are the largest and most inaccessible in the world. This is used in medical science and in addition beauty care products. Due to the large titanic value of the money associated with the supply of piles of trees that occur in deforestation and their subtlety. Joining such allocations and saving forested areas around the world in a particular conservation effort should be passed. We conclude such a structure that can be used to bind this assignment.**

Keywords: Accelerometer sensor, flex sensor, fire sensor, WIFI, GPS, and cloud.

I. INTRODUCTION

Most days we read in the newspapers about trees trafficking. These trees are very expensive. These are very useful in medical science and cosmetics. Because of the large amount of money involved in such sales of tree trunks and many incidents occur by cutting a tree and their smuggling. The problem we saw is there no medium or system to detect illegal logging and smuggling of trees. The explanation there is, in our work, we can know what happens to the trees in the forests or places should be monitored. Such a plan will help you to find and detect the illegal logging and cutting of trees, and also it will alert us to take the action. By considering this problem in mind a systemis designed to help and to achieve our goal of protecting trees by smugglers. For years we have been plagued by illegal activitysuch as smuggling precious and commercial trees such as Teakwood, Sandalwood, Sagwan etc., from protected Forest areas. These trees are very expensive and numerous commercial demands in the global market. Trees are there it is generally considered to be protected by marking others tags by hand. This will not be helpful and reliable from then on anyone can interrupt it. And in times of natural trees it may somehow be damaged. The default SMART unit has it thus it was designed to address these issues. A combination of latest wireless and embedded communication systems solutions provide us with such modules. Module is intended to work somewhere and this Module will have two Units:

1) The Tree Unit
2) The Main Server Unit (base station).

Each tree must have one Embedded System-Unit with: Arduino UNO Microcontroller, Sensors, WIFI. Being close of the mentioned lists the sections will send the current state of the tree to Base station, using the internet module. Details sent via WIFI are like a bulletin / information unit via the Internet, from now on IOT editing is built here. Details and the framework are defined by the Server in the Basic Channel. The base channel has a server that stores all your data of each tree. Construction channel connection is is available in light of the latest innovations using Amazon Web resources. Blynk is a product used in Server to translate the outline of the information of the trees in the forest. On the law server only allowed per person close to database. The database is being investigated whether the tree is protected or removed. Still the database keeps updating about the current tree condition and critical conditions should go to Forestry experts. For example, if a tree has fallen the "Flex Sensor information "will be a rare incentive than standard set limit rate.

II. LITERATURE SURVEY

The concept of the mall and the Precious wood is an insurance to keep them, the hack, the first thought is of this proposal, and what we have to do is to make the most of the latest developments in the market. These are the thoughts that are to be seen in

[1] Are opposed to the transfer of the information systems that make use of the Flex, and Its sensor. This article

addresses the question of how to avoid the physical effort and the protection of the forest. The world is a different kind of protection. Frame created www.iosrjournals.org the Use of small-scale sensor that uses the Zigbee module, Flex sensor, Wi-fi internet access included. The GPS module enables the use of Blynk section of the web. This view is further strengthened by

[2] As a Defense System for the Forest vol. 4 issue 1, Jan-Feb 2016, That is, of the three main blocks, which can be used to create a module is to be considered, such as, Wood, and Ward, / Subserver Block, and the Server will block it. Focusing on the development of the integrated system, and a mobile phone, over time, to support the server in a Microsoft Visual Basic. Android anti-trafficking module, as described in detail in the chapter on "Anti-trafficking". Alarm, trees, makes use of the Android system.

[3] The use of the accelerometer and temperature sensors were installed in the frame is less than expected, the sensor can edit, here, will be presented as well. Also, with the Android-based, the concept is very appropriate, because it has all of the mobile devices with the Android operating system which is based on the Android platform. Your provider will immediately receive a cellular phone, the messages in the midst of the noise of the world. Accelerometers in the MEMS - micro-electro-mechanical program.

[4] For the hidden stuff magazine examines the MEMS accelerometer, which is displayed as a vertical touch torisonal accelerometer (TXL).

II. METHODOLOGY

Checks on the layout of this Module in Figure 1. Module made for mechanical integration again programs. Equipment is made using sensors-temperature Sensor, Flex Sensor and Accelerometer.

The Arduino mega 2560 microcontroller is the core of Frame, which is located in the area centered on a square graph as well
controls all frame functions. LCD is used to show all the best functions inside microcontroller, this unit can connect three sensors provide details of the acquisition Cut down trees, damage with flames, and so forth. A unit of a tree can be a standard unit of use of structure. The tree unit joins three senses; Accelerometer Sensors, flex sensor, IR Fire Sensor. These sensors would pay attention to send information to the control unit in the tree that will then be transferred in operation with the stage for example the Tree Unit to the tree trunk with Internet module, to prepare to continue with Basest the station. This is the second and final time of formation which it would be to pay for the merging of data as well promote equivalent to Main-Server Unit. The tree unit recalls that there is information from various Tree Units. The cutting of trees will be identified by the accelerometer sensor and any tree organs are twisted during the growing Flex sensor send the data to the tree unit, and the temperature sensor is used send the heat combination to the control unit and an internet module. All data is sent via WIFI to Admin Mobile. With the help of a WIFI modem at any time any tree will scratch down and receive our SMS selected phone containing tree information.

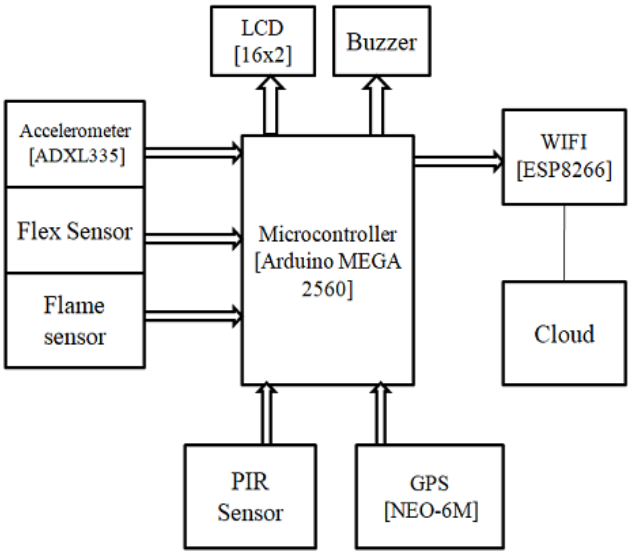

FIG 1: PROPOSED FRAMEWORK BLOCK DIAGRAM

III. COMPONENTS REQUIREMENTS

1. ARDUINO MEGA 2560

The Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input / output (15 of them can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB communication interface connector, an ICSP header, and a reset button. It has everything you need to support your microcontroller; simply connect it to your computer with a USB cable, or to put it in with a AC-to-DC adapter or battery pack to get you started.

Fig 2: Arduino Mega 2560

2. FLEX SENSOR

FIG 3: FLEX SENSOR

A flex sensor, or turn on the sensor, is a sensor that measures the velocity of the escaping or a bow. Brake for the bend sensor is needed for the body to be a part of a curve. The flexible sensor that can be used by the microcontroller to detect or measure the angles. As the name suggests, it's a flexible ink, on the basis of the sensor makes use of an unusual ink, in which the resistance changes as you bent down. The ink may contain a charcoal, or silver to make it work better. The difference between the carbon particles is large when folded and is very close to a straight line, which results in differences in the resistance. These sensors will look like to 30-ohm characters. If you're on the run, the friction between the two terminals will increase to 70 hp at an angle of 90°. Due to the combination of a flexible sensor with a static resistor to create a voltage divider, you can adjust the elastic strains, which can be used in a basic computer and microcontroller is pre-programmed software.

3. ADXL335

FIG 4: ADXL335

An accelerometer is an electromechanical device that is used for the measurement of the acceleration of the force. These forces may be static, such as the gravitational pull of the force of gravity or, as in most of the mobile phones, which will lead to growth, and vibration. The speed of a variable speed and the speed is adjusted in the course of time. Accelerometers allow the client to have a better understanding of their environment. With this small gadget, you can then decide if the question is hard to fall when you lean forward, or are you flying on a plane, or in the standard accelerometer drop the subject by just touching it covers a wide range of components, and working with a variety of sizes, and two of them are of a piezo-electric wrench, and a capacitive sensor. The piezo-electric effect is a well-known type of the accelerometer and of the structures, the use of which will eventually lead to health care due to the force of the acceleration. These values will generate a voltage from the pressure, and accelerometer and translates the voltage to the measurement of speed and power. A capacitive accelerometer that detects changes in the capacitance between the micro, located in the vicinity of the device. As to the subject by just touching it will translate in one of these properties, the strength to change the subject by just touching it will translate that energy in a power transformer.

4. IR FIRE SENSOR

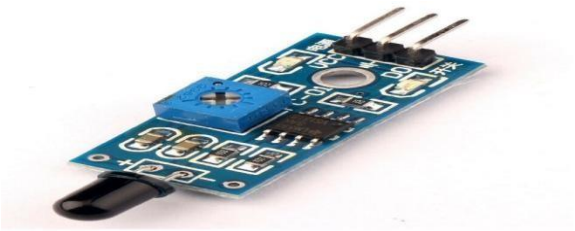

Fig 5: IR Fire Sensor

The Flame Sensor module or Fire Sensor module is a small electronic size tool that can detect a fire source or any other light source. This sensor basically detects an IR (Infrared)

light wavelength between 760 nm - 1100 nm emitted by flame or light source. Flame sensor comes with YG1006 Phototransistor sensor which is high speed and high sensitivity.

5. GSP MODULE

Fig 6: GSP Module

This NEO-6M GPS module uses state-of-the-art technology from Ublox to provide the best placement details and includes a large 25 x 25mm built-in GPS antenna with a UART TTL socket. The battery is also recharged so you can get the GPS lock very quickly. This GPS module provides the best position information, allowing for better performance of the Multirotor control platform.

6. LIQUID CRYSTAL DISPLAY

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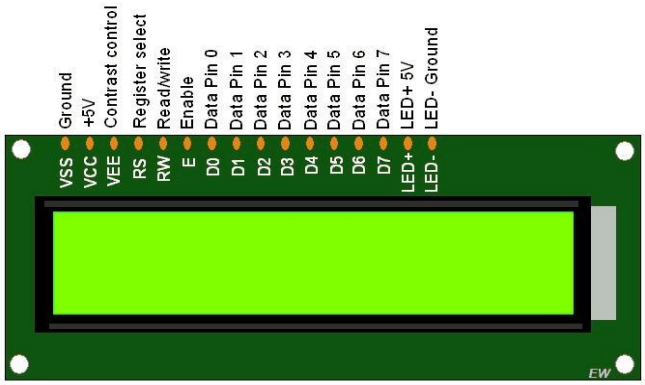


FIG 7: LCD DISPLAY

This LCD has sixteen columns and two rows so it is known as 16 x 2 LCD modules. Its operating power ranges from 4.7 volts to 5.3 volts. It uses one current milliampere to work. In this crystal liquid screen, we can use both names and numbers. In this module, each row has sixteen letters. All the characters on this board have 5 x 8 or 40 pixels. Works in four and eight-bit mode. The background light of the screen is two shades of green and blue.

7. WIFI MODULE

Fig 8: Wi-Fi Module

The ESP8266 Wi-Fi module has a powerful processing speed on board. The storage space of this module is high and allows it to interact with other sensor-like devices.

8. PIR SENSOR

PIR or passive infrared detector is widely used in alarm systems PIR is like a hot sensor. These infrared sensors / detectors are a secret sail inside the sensory safety lights that illuminate the roads when someone comes. PIRs are a pyroelectric device that is, they can generate voltage when heated or cooled detecting motion by sensing changes in radiant (aka infrared) emissions. PIR sensors usually include a field of view and / or precision distance specification, and most come with a plastic lens.

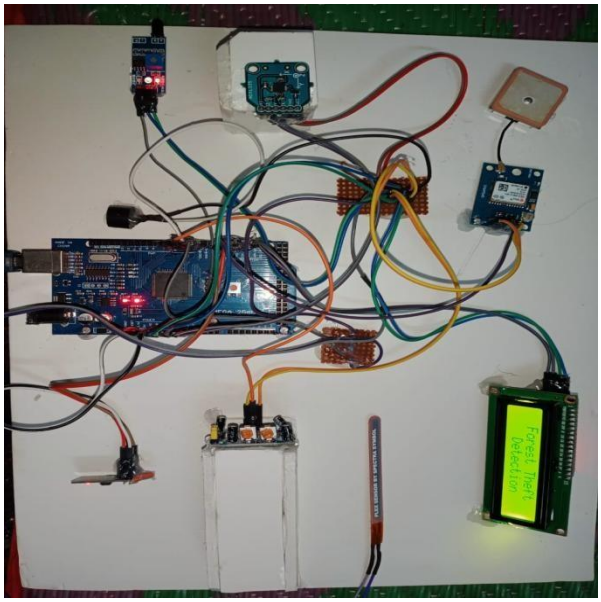
Fig 9: PIR Sensor

IV. RESULT AND DISCUSSION

I. RESULT

- The results obtained show fire detection, bend detection, deforestation and illegal movement in the forest area installed in the Blynk app in real time and displayed on the user's phone.

- Depending on the implementation of the accelerometer, flex, PIR and smoke sensor, results are obtained for the movement of trees, people and smoke, and even for fire. The Blynk app directly displays end-to-end information and display of these events.
- Incidents of deforestation and fires with light and smoke are reported here and are confirmed by the actual situation. Results found to be correct for Blynk application



V. APPLICATION AND ADVANTAGES

II. APPLICATIONS

- This project can be used in the Forest to save the tree.
- It can be used in all parks to provide security.
- The concept can be used to save Sandal.

III. ADVANTAGES

- Trees can be protected from robbery.
- In case anyone tries to cut down a tree, the location will be tracked and details will be sent to control the room immediately.
- All as all trees are connected to the senses it is considered by other trees.
- Sensors work accurately so it is easy to install and work with good results.
- Base Database of all trees can be saved.

VI. CONCLUSION AND FUTURE SCOPE

I. CONCLUSION

The idea was eliminated to avoid managing important trees in a protected area in the jungle. There are many ways to protect the trees however a light procedure for inserting a few sensors around the trees with a microcontroller has been done. The most recent computer distribution system using Amazon webmaster is running as a remote tree detection server. That means Forest experts in the form of trees on 24x7 bases. This was considered because the installed unit has GPRS. The idea was to view each tree as a smart drug (with microcontroller, sensors and GPRS) and to bring more such trees under the system (Internet of Things). However, the condition of the trees is under constant observation due to the nerves. After that the integration of IOT, WSN and AWS to ensure Environment. In these lines we built a structure that was designed to limit the felling of a tree in the backwoods where one was not built to provide security. Such a structure makes it to the back trees where the tree is very high and its protection is a practical foundation. Here we are given such a kind of program.

We are developing such a framework that can be used to prevent deforestation that will thus halt deforestation and maintain environmental balance that will understand one of the problems with global warming that is most commonly used in back forests.

II. FUTURE SCOPE

Although it is claimed that a Smart module is being developed to protect trees, future improvements are needed to make the system more complex. The Unit / Hardware / Sensors should be hard. The fenced area should be made. - The module should be located in an inaccessible area of trees, not easily accessible to tree destroyers. - Forest officials must be properly trained.

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