

PREDICTION AND PREVENTION METHODS FOR PROTECTION OF SESACHALAM FOREST LOCATED IN CHITTOOR AND KADAPA DISTRICTS, AP, INDIA

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Abstract

The abstract starts with philosophical point that is "necessity is the mother of invention". The authors have the belief on those words. The view of authors, the research means that clear understanding working mechanism of nature and use of those phenomena for best simpler life of human beings. According to physicist Richard P Feynman said to the students that, "I am not teaching you pupil to get pass in end exams or get job in defence research or any industry, I am trying to make you pupil to understand the nature., which helps us to create miracle things who ever been seenbefore". These philosophy is enough to continue authors research. The paper is mainly inspired by natural problems which is identified at sasachalam forest which is located and spreads over two districts namely chittoor and Kadapa, Andra Pradesh. The main problem we found that is; the forest has high density of sandal wood trees. The world knows that, the sandal wood is very precious in everyday life of human beings, like medicine, house equipment's and it finds so many interesting potential applications in many fields. This makes, these trees have greater role and have very richness in market. This makes in society the thought of smuggling that the persons cut the trees illegally and export to another country to earn money. The forest department is unable to catch them in all situations. The government of AP believes that most of the income to government from them (sandal wood trees). And one more problem was identified by authors that read from newspapers, smugglers were killed the police officers in stopping of cutting sandal trees. These are two outstanding problems what the authors have in mind. Here the authors build the interesting system to prevent the cutting of trees and also warns the remote station as well. Sometimes natural disasters may also collapse the trees like forest fires and high density rain. This information is also knowing to officers because they have to collect trees to market. Here the problem is modeled into three categories 1) Someone may cut the trees. 2) Due to rain the trees may fall down 3) Forest fires. In first problem someone may cut trees, in that situation, the proposed method of finding the position detection continuously and sends message to remote station if tree is safe it sends message "Normal Positions". If anybody cuts the tree, the systems wait until reaching maximum slope value and beyond that it sends message immediately to remote station like "Tree is fallen" and officers take an action depending, which tree is cut. And second case is disaster, if trees fall down we need to collect those trees for marketing, this work is helpful in this situations also. And final one, the authors suggest that fire detection using sensors and to prevent fire we use more traditional natural method to stop. This paper is very helpful to trace out smugglers, enhancing monitoring capability, reduction in man power for protection and finally saves government income. The main plane is to detect tree position based on slope of tree and sends feedback to remote site for to take necessary actions. The main motive is serve technology to real time world problems to solve and makes the world much simpler in all aspects.

Keywords: Arduino, Accelerometer, Sensors, Embedded Systems

1. INTRODUCTION

The world is changed a lot in recent days because technology influences all the fields of science and technology that medicine, electronic industries, chemistry, anatomical studies etc. In the paper tried to develop an interesting application systems to protect the sandal wood trees. The development systems include the most sophisticated process to detect the smuggler. Here

embedded systems, sensor technology, hardware software co-design, embedded c programming is need to build.

2. PROBLEM DEFINING

The paper is mainly inspired by natural problems which is identified at sasachalam forest spreads over two districts namely chittoor and Kadapa. The main problem here is; the forest is densely composed of sandal wood trees. The world

knows that, the sandal wood is very precious in many fields like medicine, house equipment's and it finds so many interesting stuff applications. This makes, these trees have greater role and very rich in market. The persons cut trees illegally and export to another country to earn money. The forest department is unable to catch them in all situations. The government of AP believes that most of the income from them (sandal wood trees). Here the authors build the interesting system to catch them and also warns the remoting station as well. Sometimes natural disasters may also collapse the trees like forest fires and high density rain.

Here the problem is arising mainly three types

- 1) Someone may cut.
- 2) Due to rain trees may fall down
- 3) Forest fires.

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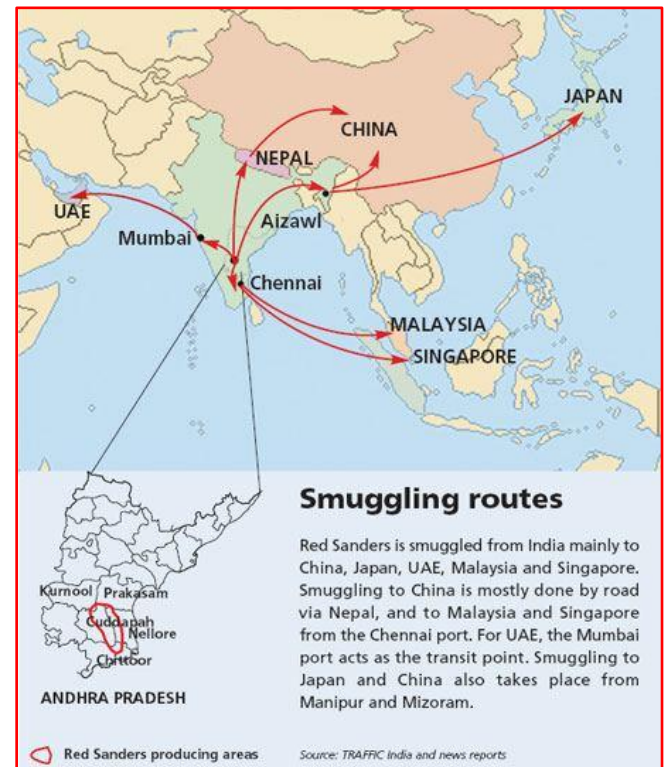


Figure 2: Smuggler Aerial root map



Figure 3: Sandalwood trees

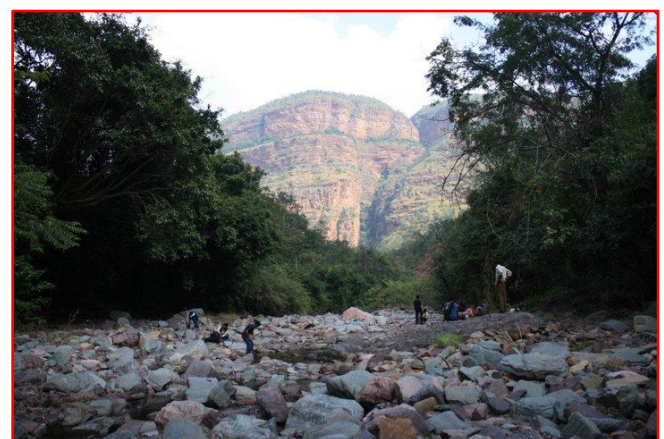


Figure 4: Snapshot of Sesachalam Forest



Figure 1: Trunk of sandalwood



Figure 5: Forest firing Problems



Figure 8: Density of the sandal wood trees in Sasachalam forest



Figure 6: Smugglers problems



Figure 9: Sandalwood for Cosmetics



Figure 7: Satellite view of Sesachalam Forest in A.P

HEALTH BENEFITS OF SANDALWOOD ESSENTIAL OIL	
Reduces blood pressure in hypertension patients	Lowers bad cholesterol
Provides relief from inflammation	Works as an antiseptic agent
Heals scars and spots	Helps in weight loss
Fights aging	Prevents excess gas formation
Boosts immunity	Helps in treating urinary infections
Tightens skin & soothes it	Improves memory & concentration
Other use : Used as a deodorant	Helps strengthen gums & muscles

Caution: Mix with some type of carrier oil for application on skin

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Figure 10: Applications of sandalwood in medical industry

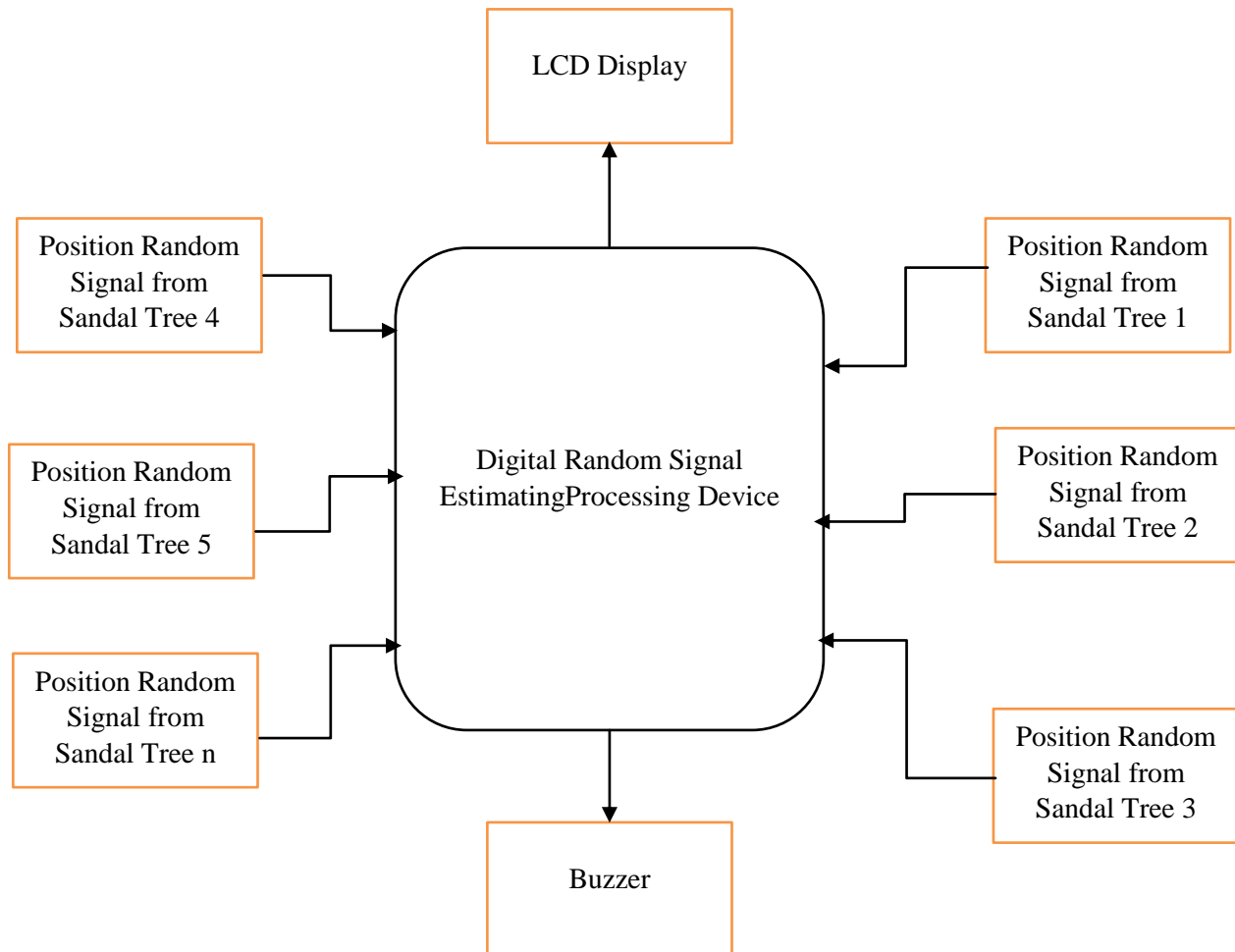


Figure 11: Architecture of the developed Position Estimating system

The mathematical modelling of the signal from the N Sandal trees are as

$$\text{Signal 1: } Y(t) = \int_{-\infty}^{+\infty} x(t) * h(t - T) dt$$

$$\text{Signal 2: } Y(t) = \int_{-\infty}^{+\infty} x(t) * h(t - T) dt$$

$$\text{Signal 3: } Y(t) = \int_{-\infty}^{+\infty} x(t) * h(t - T) dt$$

$$\text{Signal n: } Y(t) = \int_{-\infty}^{+\infty} x(t) * h(t - T) dt$$

The above equation represents the physical wave nature of the position of the tree and its nature in nature random signal. We need sophisticated system, who can process these signal

in more desirable way to warn the monitoring station person to know the status of the particular tree.

If anyone cut the tree the sophisticated system understands the signal and sends feedback to the monitoring station. They will alert by the systems an acts accordingly to trace the smugglers. We need random signal processing digital computing device and it took the decision. In mathematical modelling signal1, signal 2, signal3..... signal N shows the signals from the sandal trees. The method is efficient to trace down the smugglers.

3. RESULTS & DISCUSSIONS

The above mentioned things are clear that the value of Sandal wood in the society, there is a need to protect sandal wood from smugglers and natural disasters as well. We implemented the protection with high quality random function estimator and controller. The system is more flexible for catching up the smugglers. The results of the practical detection systems as shows below at various stages. The figures on following shows the estimation of the tree position at various level and action accordingly.

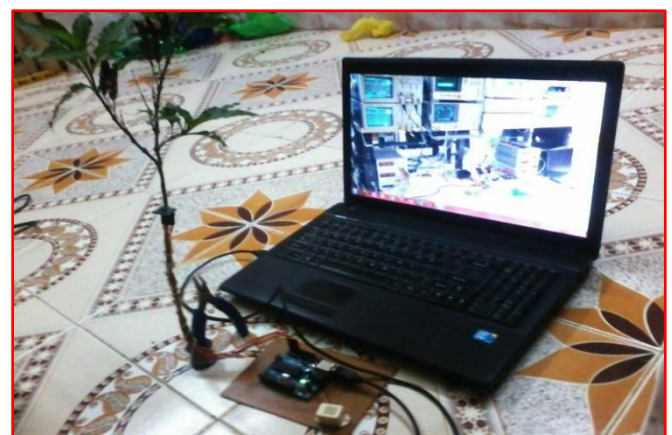


Figure13: Sensor Interfaced to Sandal tree



Figure 14: Accelerometer meter view

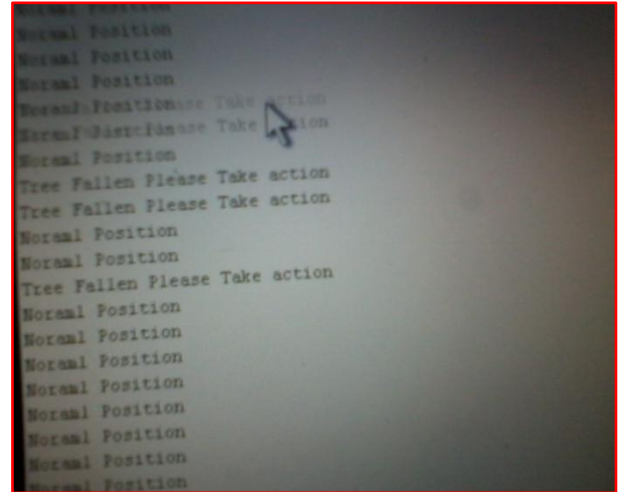


Figure 17: Results display1

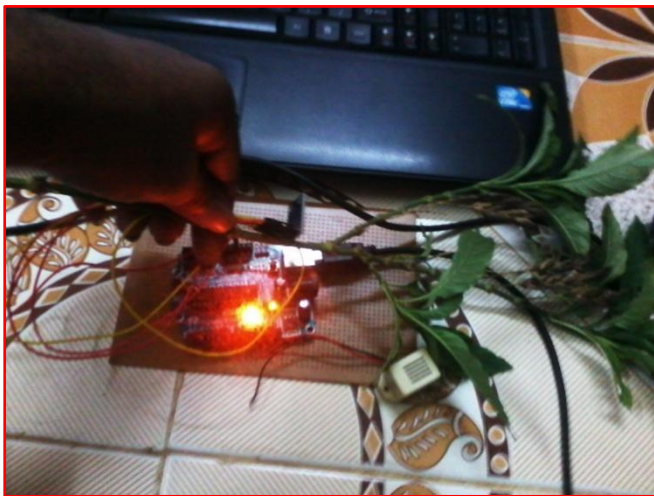


Figure 15: Tree fallen position

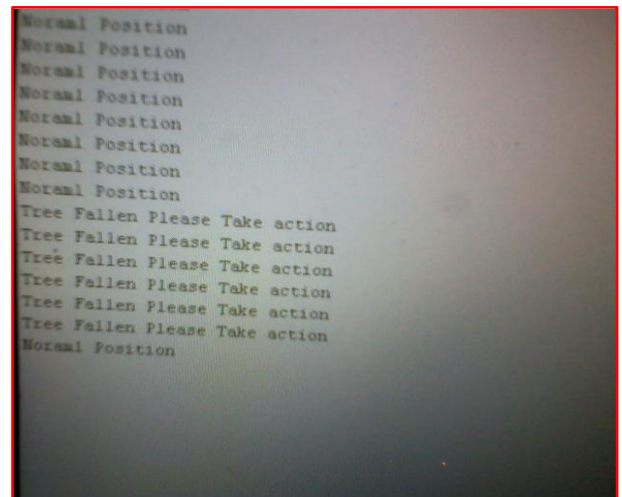


Figure 18: Results display2

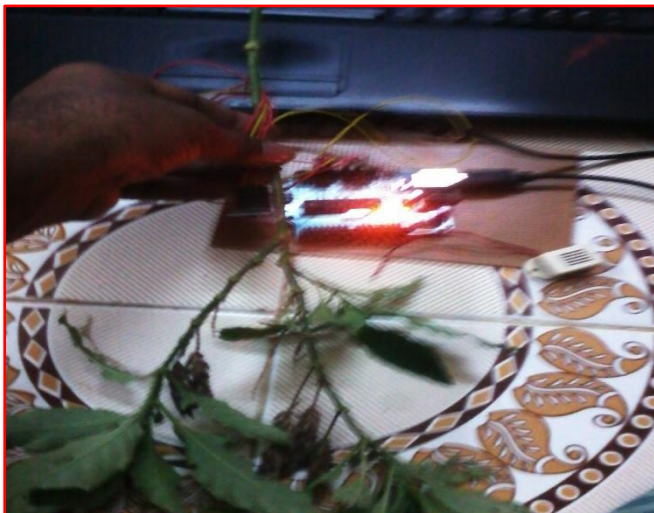


Figure 16: Tree fallen position

4. CONCLUSION

In infer, this project is more suitable for Govt of AP. Let ou know how it? main economy generating for Andhra Pradesh is from sandal wood. The smuggler is hardly trying to smuggled these sandal wood. We read from newspapers that smuggler killed police officers in smuggling. The project what we developed is perfectly monitoring the each and every tree position. The information about particular sandal tree continuously feeding to monitoring station. If anybody cuts the trees, the system what we developed alerts the police officer and also it has another feature that gives where the tree is located. Based on the data given by the system police officers takes an action accordingly. So the project saves lot of money in cores of amount to the Govt.

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BIOGRAPHIES



G Ashok, He is currently working as Assistant Processor, Dept. of ECE, SMGG, Guntur. He teaches at SMGG, signal & systems, Probability & Stochastic Processing, Digital Signal Processing, Circuits & Systems, and Digital Image Processing. He has 3 and half years of Teaching & Research Experience. He published few International Journal's. He hold B.Tech & M.Tech from JNTUA. Area of Research, Electromagnetism, Artificial Neural Networks, Superconductivity, Intellectual systems design. Follow him on: <http://www.howtoadapttonewtechonology.blogspot.com>



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