**ABSTRACT/INTRODUCTION**

A system is designed comprising of an app, a database and a few sensors which send data to the database. Users have to upload the location of the sapling they have planted in the app which can later be viewed using google maps for geotagging purpose. Sensors to detect vibration have also been proposed to know if miscreants are cutting down the tree. RFID tagging system is used to mark the trees after they are grown to a particular height. Different components communicate with the database using a X-Bee module which is used to create a personal area network. Alternatively, they will be allowed to communicate over cellular network. A provision has been kept where user is also alerted through SMS if any abnormal inputs are provided by the sensor.

**SOLUTION**

Each user will login through the app and maintain its own profile and details of the planted saplings and will get updates from the sensors.

A unique identity will be created for each tree over a blockchain.

Users will get option to add their sapling’s coordinates along with image and other necessary data.

The app will also contain basic information about how to prevent plant death and information about what nutrients and conditions are proper for plant growth.

When a new sapling is planted, the plant location is to be uploaded by the user in the app which can then be accessed using the app through google maps to determine the accurate location.

This data will be transferred to the database over a cellular network which will be accessible through the app.

The app will be designed to remind the user regularly water the plant and check its health and report if any irregularity is detected.

Plantea’s Nano sensors will be used which can regularly send data and updates about the plant’s growth.

Once the plant reaches a certain height, RFID tags can be used to identify locate and get updates of the tree.

Accelerometer and vibration sensors are employed to detect if the tree is being cut down or any other damage being done in real time.

These sensors will be designed to send data every hour to the database.

Immediate alert will be issued to the user to take action if any discrepancies are found in the collected data.

It will also regularly update the user with the weather data fetched from the meteorological department website or any other relevant sources.

Soil/moisture sensors will be used to detect whether proper amount of moisture is present in the soil or not and know the humidity of soil to find if it is proper for the plant’s growth.

Soil Temperature Sensor to detect the proper temperature of the soil, electrochemical sensors to monitor the pH and soil nutrients.

The sensors will be connected in an IOT network so that their data can be collected regularly and can be monitored remotely

Through edge computing common data is filtered and any anomaly is sent to the cloud which is then notified through the app.

A sprinkler will be placed in the soil so that whenever the soil water level drops below a threshold value. The sprinkler becomes on and automatically waters the field. When the nutrient level goes low the user will get a notification about which nutrient/mineral is deficient and how to resolve it.

**ADVANTAGES**

The rfid tag comes with a unique id which will identify the area by broadcasting its location.

**KNOWN ISSUES**

Lack of expertise might lead to wrong coordinates of tree’s position being uploaded, which might lead to more errors when satellites are used to locate the trees and monitor their health.