ABSTRACT

Forests are natural resources that have various important benefits for the survival of living things. Forests have the main function as absorbing carbon dioxide, producing oxygen as well as habitat for flora and fauna. The vast forest ecosystem, besides being beneficial as one of the most important aspects of the Earth's biosphere, also has benefits for human life and the environment. However, many people in Indonesia are less aware of good and correct forest management. So do not be surprised if a lot of forest damage in Indonesia. Most forest destruction in Indonesia is caused by illegal logging (Illegal Logging). The solution to overcome this problem is to create a tool that can detect and track illegal logging.

The implemented system consists of several main components namely Arduino Nano, KY-037 Sound Sensor, Motion Vibration Sensor SW-420, XBee Pro S2C, Ublox Neo-7M GPS (Global Positioning System) Module, and using Arduino IDE as software to compile from a program becomes a binary code that will be uploaded into the microcontroller memory and Visual Studio that uses the Visual Basic .Net language program as a visual application.

On the router / transmitter there is a Sound sensor, a vibration sensor, and a GPS module that will obtain an id, sound, vibrate, latitude, and longitude value in the serial data and all serial data will be packaged and sent to the XBee coordinates / receiver connected to the computer.

The results of this system test to display all data received in the form of labels and information on the application as well as marking the maps to find out the location of the tree. And there is also a notification if logging occurs if the value of the sound sensor detects the sound of a chainsaw with a frequency of 92-130 dB or if the vibrating sensor detects a vibration that has a value of more than 1000 then it will give a danger notification to the application.

Keywords: Illegal Logging Monitoring, GPS Module, XBee Pro S2C, Sound Sensor and Vibration Sensor