Wireless Sensor Network for Illegal Logging and Wildfire Detection

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Deforestation, the huge problem happening in Thailand, caused by both of illegal logging and wildfire in the forest. They destroy the forest in yearly. To stop deforestation, we built and installed the “Wireless Sensor Network for Illegal Logging and Wildfire Detection” in the risky areas to help the officers who work and detect deforestation. This sensor will detect unusual situations from chainsaw's sound frequency and the reverse measurement of humidity and temperature. For data transmission, all of these sensors will transfer the data through the wirelessly. To build this system, the experiments are i) study the data transmission via 2.4 GHz. ii) study and detect the chainsaw's sound in a forest. iii) study the temperature and humidity transition during wildfire. This project shows that the node can transmit to the maximum distance at 45m with less than 50% error. The node is able to detect the chainsaw's sound with the furthest distance at 90m with a 90% false positive. The false negative percentage has found that the node should be installed at the minimum distance of 55m from the road. The node can measure the temperature and humidity transition which can be analyzed to find the wildfire expanding rate.

Awards Won:

U.S. Agency for International Development: USAID Science for Development Second Place Award of $3,000.