

255. WIRELESS SENSOR NETWORK BASED FOREST FIRE WARNING SYSTEM USING AUTONOMOUS UAV

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The implementation of forest fire detection oriented WSN and traditional monitoring approaches like lookout towers and satellite based monitoring were used. Fire detection has been chosen to illustrate the IDM (Intelligent Decision Making) capability of the system utilizing artificial neural networks. Also Fuzzy Logic algorithm were developed using five membership functions as temperature, smoke, light, humidity and distance. The proposed system presents a new type of early warning systems which uses Un-manned Aerial Vehicle (UAV), wireless technology and power of artificial intelligence for forest fire detection. UAV will keep the forest under surveillance through auto piloting and transmits real-time video to the base station using wireless communication based on acquired data the base station decides and takes control over UAV (e.g. Moving left, right, rotating etc.) In the base station, pattern classification is used to detect whether any fire exists in forest, if so the drone becomes stationary and provides live video of fire. This system provides a complete autonomous surveillance for valuable resource forest. One of the best features of this system, is the early warning that is provided through the fire alarm.

Keywords: Drone, Artificial Neural Networks (ANN), SVM, Pattern Classification, Random Forest.

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