

LOW COST INFRARED AND NEAR INFRARED SENSORS FOR UAVS

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ABSTRACT:

Post wildfire hotspot detection presents a significant challenge for wildland firefighters in upper Michigan. Hotspots are burnt areas still hot enough to reignite another wildfire. The size of upper Michigan wildfires along with smaller budgest makes it unlikely that traditional air support or forward looking infrared (FLIR) resources will be made available. Typically, wildland firefighters must find and extinguish hotspots by foot, a time consuming process prone to error. Students at Michigan Tech have developed a system of low cost infrared and near infrared sensors for use on small UAVs for the detection of hotspots and unburnt fuel sources. The cost of the UAV and sensors is under \$1000. The system is also fully integrated with the UAV autopilot and features a secondary on board computer capable of directing the UAV to focus on and map potential trouble areas rather than spending flying time mapping areas with no hotspot activity.