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Intelligent Outdoor UAV Surveillance

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The Unmanned Aerial Vehicles (UAVs) nowadays have vast applications for both civilian and military purposes. The ability of UAV to carry multiple sensing equipments makes it suitable for many fields in which surveillance is important. UAVs allow for a quick and inexpensive operation when compared to traditional methods used for surveillance applications.

The present research is based on building a quad copter and using onboard Arduino Mega 2560 microcontroller along with multiple HC-SR04 ultrasonic sensors for obstacle avoidance by implementing Sense and Avoid algorithm, equipping it with an analog FPV camera for obtaining live video feed with minimal latency, providing headcount at a specified location, tracking a particular person, automating the quad copter and collaborating it with the Unmanned Ground Vehicle (UGV) in order to make surveillance and security efficient. The research also encompasses the development of a Ground Control Station (GCS) with a map. The communication between quad copter and the GCS is established through MAV Link (communication protocol for drones).

Keywords: Quadcopter, UAV, Arduino Mega 2560, HC-SR04, FPV camera, UGV, GCS, MAVLink, headcount, Sense and Avoid algorithm.

Biography

Syed Muhammad Talha Ali is a final year student in Sir Syed University of Engineering & Technology, Pakistan. Through the 4 years of his university he has managed to maintain high grades and received several certificates and awards for participating in numerous events and competitions. His passion for contribution and innovation in new technology especially in the field of Computer Science has led him to accomplish certain projects that may help to ease the everyday life of people. He believes that knowledge must never be conserved; it must be

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