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(54) Title of the invention : AI driven Unmanned Amphibious Vehicle with Real-Time Intelligent Surveillance Capability

(51) International classification	:B64C 39/02, B64C 35/00, G05D 1/10, G06V 20/17, B63G 8/00	(71)Name of Applicant : <b>1)Vidyavardhaka College of Engineering</b> Address of Applicant :Vidyavardhaka College of Engineering P.B. No.206, Kannada Sahithya Parishath Rd, III Stage, Gokulam, Mysuru, Karnataka 570002 Mysuru Karnataka India
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(57) Abstract :

An unmanned amphibious aerial vehicle is capable of operating seamlessly in aerial and aquatic environments for real-time surveillance, reconnaissance, and emergency response operations. The system comprises a waterproof and buoyant chassis, a multi-mode propulsion system configured for both air and water operation, an integrated flight and stability control architecture, and an onboard vision-based surveillance module employing machine learning algorithms for object detection and classification. The vehicle transitions between air and water by dynamically controlling thrust, buoyancy, and orientation through coordinated motor and controller operations. An embedded imaging system captures real-time visual data, which is processed using convolutional neural network-based object detection to identify targets including vessels, humans, and structures under diverse environmental conditions. The unmanned amphibious vehicle further incorporates underwater stealth characteristics through reduced volume, high-density body design, and minimized drag profile to lower radar and visual detectability. The disclosed system provides a cost-effective, versatile, and autonomous platform suitable for defense, search and rescue, environmental monitoring, and logistics applications.

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