

Study and Calibration of Autonomous UAV Systems With Thermal Sensing With Multi-purpose Roles

Authors : Raahil Sheikh, Prathamesh Minde, Priya Gujjar, Himanshu Dwivedi, Abhishek Maurya

Abstract : UAVs have been an initial member of our environment since it's the first used by Austrian warfare in Venice. At that stage, they were just pilotless balloons equipped with bombs to be dropped on enemy territory. Over time, technological advancements allowed UAVs to be controlled remotely or autonomously. This study shall mainly focus on the intensification of pre-existing manual drones equipping them with a variety of sensors and making them autonomous, and capable, and purposing them for a variety of roles, including thermal sensing, data collection, tracking creatures, forest fires, volcano detection, hydrothermal studies, urban heat, Island measurement, and other environmental research. The system can also be used for reconnaissance, research, 3D mapping, and search and rescue missions. This study mainly focuses on automating tedious tasks and reducing human errors as much as possible, reducing deployment time, and increasing the overall efficiency, efficacy, and reliability of the UAVs. Creation of a comprehensive Ground Control System UI (GCS) enabling less trained professionals to be able to use the UAV with maximum potency. With the inclusion of such an autonomous system, artificially intelligent paths and environmental gusts and concerns can be avoided

Keywords : UAV, autonomous systems, drones, geo thermal imaging

Conference Title : ICGUAVDPM 2023 : International Conference on Geomatics, Unmanned Aerial Vehicles, Data Processing and Modelling

Conference Location : Venice, Italy

Conference Dates : June 15-16, 2023