

# PERFORMANCE ANALYSIS OF SELF STABILIZING FIXED WING UAV FOR REAL TIME SURVEILLANCE

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## Abstract

This paper discusses the design and performance of a fixed-wing Unmanned Aerial Vehicle (UAV) mounted with a flight stabilizer to stabilize itself during flight with a surveillance application. This work has been carried out considering the wider applications of low weight, low-cost UAVs. The addition of a flight stabilizer reduces the requirement of a pilot at all times during the flight. The paper discusses the design parameters of the UAV and the on-board electronics used. Various design parameters were evaluated, and a configuration was selected. The flight stabilizer was programmed accordingly, and the Flight Data Recorder (FDR) was put in place to record the in-flight parameters. Flight tests were carried out in many phases, to check the surveillance footage, aircraft's performance without stabilizer and with stabilizer. Finally, the results obtained were optimized to fly the stable aircraft for surveillance over an area.

**Keywords:** Flight Stabilizer, Fixed-wing, Surveillance, UAV