

## Real Time Data Communication with FlightGear Using Simulink Over a UDP Protocol

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**Abstract :** Simulation and modelling of Unmanned Aero Vehicle (UAV) has gained wide popularity in front of aerospace community. The demand of designing and modelling optimized control system for UAV has increased ten folds since last decade. The reason is next generation warfare is dependent on unmanned technologies. Therefore, this research focuses on the simulation of nonlinear UAV dynamics on Simulink and its integration with Flightgear. There has been lots of research on implementation of optimizing control using Simulink, however, there are fewer known techniques to simulate these dynamics over Flightgear and a tedious technique of acquiring data has been tackled in this research horizon. Sending data to Flightgear is easy but receiving it from Simulink is not that straight forward, i.e. we can only receive control data on the output. However, in this research we have managed to get the data out from the Flightgear by implementation of level 2 s-function block within Simulink. Moreover, the results captured from Flightgear over a Universal Datagram Protocol (UDP) communication are then compared with the attitude signal that were sent previously. This provide useful information regarding the difference in outputs attained from Simulink to Flightgear. It was found that values received on Simulink were in high agreement with that of the Flightgear output. And complete study has been conducted in a discrete way.

**Keywords :** aerospace, flight control, flightgear, communication, Simulink

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