TRANSIT Newsletter

January – June 2017

TRANSIT Progress is on track

Our first Project Review Meeting was held on 10th May 2017 at Cranfield University. The meeting welcomed the Research Team and Steering Committee, including academics and representatives of industrial partners from Air France KLM, BAE Systems, Rolls-Royce Plc, Simio LLC and Zurich Airport, as well as wider participants from ADB Safegate, AeroSoft Ltd, Optimal Synthesis Inc., University of Nottingham, University of Exeter, Queen Mary University of London and Liverpool John Moores University.

Guest Speaker

Dr Victor Cheng from Optimal Synthesis Inc. presented results from Surface Operation Automation Research (SOAR) for Surface Trajectory-Based Operations. SOAR is a collaborative research with NASA Ames Research Center. TRANSIT extends SOAR concept by combining routing and scheduling algorithms with detailed aircraft models for time and fuel optimal 4DTs.

Simio Training

During the same week, the research team undertook a 3-day training course for Simio simulation software. Simio will be used in TRANSIT as a simulation platform to validate the proposed approach.

Project Meetings – May 2017

Day 1: Project Review

During the meeting the 4-Dimensional Trajectory (4DT) guidance was demonstrated on the aircraft simulator for a departing aircraft at Hong Kong International Airport. The simulation case study revealed that the TRANSIT Active Routing approach had the shortest taxi time and fuel consumption compared to the conventional constant speed approach. The simulation trials showed promising results, highlighting the need for optimisation of route, schedule and speed of aircraft and confirmed the trade-off between taxi time and fuel consumption.

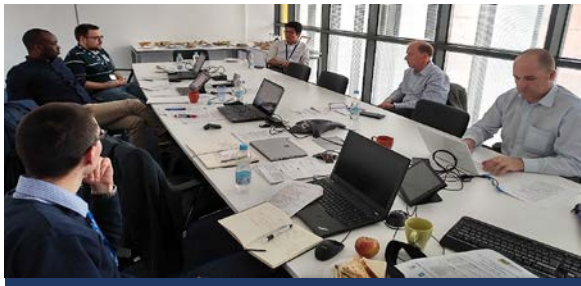
Aircraft Simulator Case Study – Project Review Meeting

Following the demonstration, the current and future research work in individual work packages was described. The University of Sheffield team presented their progress on the computational model of Landing Gear, Engine and Airframe Dynamics, which is at the core of the Active Routing approach.

Two discussion sessions were held during the meeting, where the impact of Internal/External factors on ground movement and the uncertainty of 4DT based Ground Operations were discussed. Valuable input from academic and industrial partners will drive the further work on TRANSIT. One suggestion is to integrate routing and scheduling algorithms into the Follow-the-Green taxi guidance concept, which uses taxiway lighting system to guide aircraft and was already trialled at airports.

Day 2: Project Management

The management meeting outlined the future work in WP1-WP3. This will involve the maturation of the approach used during the demonstration – Improving the ability of pilots to follow the instructions, incorporating various uncertainties and more accurate fuel consumption based on data from industrial partners.



The next Project Management Meeting is expected to be held at the University of Sheffield in September 2017.