Case Study: Aero UC5

Sferion TM is an industrial situational awareness suite for helicopters flying in degraded visual environments. The landing symbology function supports the pilot during the landing approach by marking the intended lading position on ground using a head-tracked Helmet Mounted Sight and Display (HMS/D) and Hands On Collective And Stick (HOCAS). The spatial awareness is enhanced during the final landing approach by displaying 3D conformal visual cues on the helmet. Obstacles in the landing zone are detected and classified using a real-time OWS (Obstacle Warning System). Depending on the customer and the helicopter platform, the landing symbology function may have different features selected. The original models have been designed by engineers using MaTeLo tool (http://www.all4tec.net), OVM (REMiDEMMI) and Matelo Product Line Management (MPLM). They have originally been presented by Samih et al. MaTeLo supports the description of statistical usage models by using extended Markov chains. MaTeLo's usage model is a DTMC, where the nodes represent the major states of the system and the transitions are labelled with the actions or operations of the SUT with their probability to be fired. In the Sferion TM landing symbology function model, the transitions are tagged with a probability representing the likelihood, when we are in one state, to execute the transition, and an action performed when the transition is executed; and each action is associated to zero, one or more requirements. The variability is described using OVM (Orthogonal Variability Model), each variation point is associated to zero, one or more requirement(s).

Feature Diagram

The feature diagram in TVL format (see TVL) may be downloaded here: aerouc5.tvl

The feature diagram in SPLOT format (see SPLOT may be downloaded here: aerouc5.splot.xml

Featured Transition System

The model may be downloaded here: aerouc5.fts

Usage Model

The model may be downloaded here: aerouc5.usagemodel