

DEVELOPMENT TREND IN AIR TRAFFIC CONTROL SIMULATOR

The intensity of the air traffic at the airport is growing rapidly and, accordingly, increases the risk of emergency situations on the airfield, and above it. Therefore, the problem of training working in the airdrome tower air traffic controllers in performing their tasks in freelance, emergency conditions, is keenly relevant.

However, until recently, the development of effective air traffic control simulators for solving problems of the taxiing, takeoff and landing ran into insurmountable barrier security, because it is impossible to train air traffic controllers working in emergency situations on the airfield of the modern major airport without risk of making a catastrophic situation. As a result, nowadays air traffic control simulators have the form of simulations, the most advanced of which simulate the panorama view from the control tower via a three-dimensional computer graphics.

3D-TOWER simulators allow simulating the visual image of aerodrome and air conditions in the aerodrome zone similar to the real one. The technology of mixed reality combines the real world and virtual objects created by a computer.

Air Traffic Control training simulator of new generation based on the mixed reality could be briefly described as follows:

- the air traffic controller is on his workplace in the traffic control tower observing the airport flying field;
- there are moving virtual planes (or any other objects) side by side with real planes on the field;
- the virtual planes are driven by real pilots by means of special control devices, the virtual planes may safely take part in the training situations including dangerous ones;
- the traffic controller communicates with the virtual planes pilots in the usual way.

Today's ATC systems, including training simulators, are large, expensive, and static installations. eCoach seeks to be the opposite of all these, namely an easily expandable, rather small and inexpensive, and highly affordable, ATC training simulator.

As a consequence of this, eCoach can be used as a multi-purpose product:

- as a comprehensive tool for airspace planning and evaluation;
- as a tool for training of air traffic controllers, at all stages in their education, even after certification (periodic re-fresh);
- as a tool for testing of existing full-fledged air traffic control systems.

The eCoach Enterprise edition is a simulator for air traffic controller training. It contains both a simulation suite with pilots and exercise designer(s), and an ATC system suite with radar and flight plan processing as well as stripless controller working position(s). One important aspect of the multi exercise capability is that each exercise can run using its own environment and airspace data.

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