

Research Work Title

Precision Approach Radar



Executive Organization

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Abstract

Precision Approach Radar (PAR) is one of the most important air traffic control systems which guides an aircraft to a safe landing during the final approach specially in adverse weather and low-visibility conditions. A safe aircraft landing requires the pilot to have very accurate information about the position of the aircraft and the amount of deviation from the main landing route to make this vital part of air travel as safe as possible by re-routing. This information is provided to the pilot by PAR during the final approach. PAR is a 3D radar system operating in X frequency band consisting of two antennas one for azimuth and the other for elevation coverage. This system extracts the position of the aircraft relative to the hypothetical lines of the glide and course paths by scanning the space in azimuth and elevation. Then, it passes instructions by the controller to the pilot on corrective action in case the aircraft has deviated from the main landing route. PAR guarantees a safe landing especially in adverse weather and poor visibility conditions until the landing threshold is reached. The distinctive features of this system are the following:

- Applicability in adverse weather and poor visibility conditions
- Multiple runway coverage
- High accuracy in 3D measurements
- Different radar processing modes for improving the performance in various weather conditions

