

Development of a Fibre-Optic Sensing System for Aircraft - Runway system and Aircraft Approach Measurements using Microcontrollers

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TEAM		
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Many technical advancements have been made in the testing methodologies of various railway tracks these days and one of the most advanced testing procedures is Fibre Optic Sensing system in which the control system is being monitored and put under constant computerised observation making it more beneficial and non-destructive in nature. In growing India, the railway detecting system has been still more or less the same and thus few of the private aided companies that work under this novel engineering concept have approached PolyU company that has proposed this through an IEEE paper presentation. However, with electrification and power electronics traction drive systems, aggravated by the electromagnetic interference in the vicinity of the signalling system, railway engineers often find unstable or even faulty operations of track circuits and axle counting systems, which inevitably jeopardizes the safe operation of trains. A new means of train detection, which is completely free from electromagnetic interference, is therefore required for the modern railway signalling system. Fibre Bragg grating (FBG) is an optical sensor in an optical fibre for sensing changes in either strain or temperature. FBG sensor has been selected for the study being carried out because of its fast and quick time response as well as its EMI property. But our idea works on a whole new level of how we incorporate this technology in an aircraft – runway system and

where can we get to know about it. Our convention will solely discuss upon the issues of how an aircraft and pavement classification numbers are important in setting the primary inputs of a standard runway and localising domains for a zero-weight clearance. The runways characteristic plain will be mathematically considered, and the runway will be set with due number of microcontrollers that allow and assist the aircraft in showing a standard direction on a runway (or runways in case of coinciding air traffic zone) as it moves forward. As it moves with respect to due speed limits, we will simultaneously calculate the amount of approach it is making and will use microcontrollers in making assistance to a verified field domain. Only thing which we need to consider is about the amount of limitations which persist in this project and how we are going to overcome them and upto what extent. One major importance of considering this system above all advanced electronic or magnetic or electromagnetic detection systems is that this system is not affected by any changes in atmosphere and is undoubtedly not influenced by magnetic and electric effects. Having an advanced navigational equipment in the growing scenario of increasing air traffic circuits, a conventional and unique study of electronic communication through FBG will surely improve interest in advancing technologies.