

An Assessment of Airport Collaborative Decision-Making System Using Predictive Maintenance

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Abstract : The coordination of airport staff especially in the operations and maintenance departments is important for the airport operation. As a result, this coordination will increase the efficiency in all operation. Therefore, a Collaborative Decision-Making (CDM) system targets on improving the overall productivity of all operations by optimizing the use of resources and improving the predictability of actions. Enlarged productivity can be of major benefit for all airport operations. It also increases cost-efficiency. This study explains how predictive maintenance using IoT (Internet of Things), predictive operations and the statistical data such as Mean Time To Failure (MTTF) improves airport terminal operations and utilize airport terminal equipment in collaboration with collaborative decision making system/Airport Operation Control Center (AOCC). Data generated by the predictive maintenance methods is retrieved and analyzed by maintenance managers to predict when a problem is about to occur. With that information, maintenance can be scheduled when needed. As an example, AOCC operator would have chance to assign a new gate that towards to this gate all the equipment such as traveller, elevator, escalator etc. are operational if the maintenance team is in collaboration with AOCC since maintenance team is aware of the health of the equipment because of predictive maintenance methods. Applying predictive maintenance methods based on analyzing the health of airport terminal equipment dramatically reduces the risk of downtime by on time repairs. We can classify the categories as high priority calls for urgent repair action, as medium priority requires repair at the earliest opportunity, and low priority allows maintenance to be scheduled when convenient. In all cases, identifying potential problems early resulted in better allocation airport terminal resources by AOCC.

Keywords : airport, predictive maintenance, collaborative decision-making system, Airport Operation Control Center (AOCC)

Conference Title : ICAMSS 2018 : International Conference on Aviation Maintenance, Safety and Security

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : February 12-13, 2018