**PROJECT TITLE**

Gps tracker for Black box Ejection system of a civil transport aircraft

Abstract

The recent aviation accidents have brought to light the need for an updated black box setup that would assist in the search of aircraft debris in case of accidents over water bodies. One such accident is the mysterious disappearance of the Malaysian Airline flight that went missing in March 2014 with 239 passengers and crew onboard. The fate of those onboard and the aircraft remains unknown till date. Only a few patents have been filed on such devices till date. ICAO (International Civil Aviation Organization) is to include in its new amendments that the aircrafts to be approved after 2021 should be equipped with such devices. Since the aircrafts we are concentrating are civil, we intend in developing a mechanical system for the ejection of the black box that would completely eradicate the need of any explosives for ejection. The system would consist of a black box on rails with a pressurized cylinder that would assist in its ejection. The onboard avionics of the aircraft would sense the need for ejection through the installed system sensors that would send the signal to the onboard computer system that would activate the ejection sequence.

Flight data recorder (FDR) and Cockpit voice recorder (CVR) are very important and play vital role in the investigation of the flight accidents. An aircraft’s flight recorders are invaluable tools for investigators in identifying the factors behind an accident. Flight Recorders usually consists of two individual boxes. They are Cockpit Voice Recorder (CVR) and the Flight Data Recorder (FDR).Flight recorders are in fact painted orange to help in their recovery following an accident These are also used to locate the aircraft crash site and the circumstances in which the aircraft is crashed .There are many cases where the black box location is not identified. This project reveals simple, economic and safe ejection of FDR in case of aircraft crashes. A simple Pneumatic system with air bottle is used to operate both the hatch door and the ejection system. After the ejection, a parachute is used to land the black box little far away from the crash site debris in a safest location. Three sensors are installed on the aircraft to sense the temperature, deformation and frequency of vibration of the structure. The system is activated and ejection process takes place only when abnormal values i.e. temperature, deformation and frequency of vibration are recorded.

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