Artificial Intelligent Air Transportation Safety System

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Abstract- *In this article, Loss of lives due to fatal air accidents is an alarming problem faced by the aviation industry.The proposed system enables the aircraft to have stability and control thus saving the lives of passengers at large and making air travel a much more trustworthy and a safer experience.*

Keywords- Rescue passenger aircraft stability, center of gravity, control and stability, parachutes, parafoils.

I. INTRODUCTION

The contribution is dealing with the issue of air transportation safety in view of the potential causes resulting in air accidents and their prevention. It deals with the prevention by separate the part of the flight from cockpit. Air accident is caused due to pilot error, mechanical error, bad weather, sabotages or human error. These error can be happened any time. Air accident is also called flying mischance Aeronautics misfortunes can happened at any time. Flying mischance cases have a Great degree complexity. Aircraft crashes cause harm to the population as it may lead to the deaths of people or may even cause Injuries to the people.

II. EXISTING SYSTEM

Hartmut Hintze proposed an approach to support software security through specialized process. The matrix defines the acceptable and unacceptable risk level .This paper proposes how the airworthiness security process can be combined with functional system specification into a single and unified system model using the System Modeling Language(SYsML) [1].

Abstract: Security analysis in parallel with safety analysis, has become an established part of the system development process of modern aircraft cabin system with an increasing number of hardware and software components and functional complexity. Security analysis is centred on a risk matrix, which in turn defines the risk level in accordance to the preassigned probability of a security event occurrence and the associated effect on the aeroplane with respect to safe flight and landing. Even though a number of

Different model-based approaches for security analysis exist, a satisfactory solution for integrating the risk matrix into the model remains. Using a model-based security engineering approach this paper describes a Solution with a risk matrix being an integral part of a SysML model. For a security assessment the risk matrix is specified within the model and the model supports probability values of the occurrence of a security event and correlates them to the respective effects on the aeroplane.

Based on the specified use cases and functional architecture the next step is the accomplishment of the model-based Risk Identification and Risk Analysis in the SecEP by an adapted application of the CORAS approach. For this purpose a conceivable misuse case which corresponds to a specified use case is identified and added as security cause to the SysML use case diagram. Related to the example it has been identified that an attacker could operate the cabin unauthorised as shown in Figure 1.

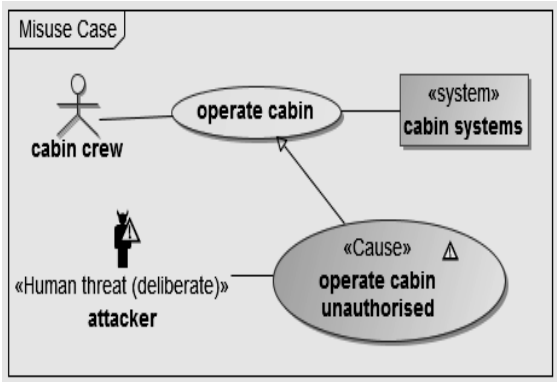


Figure 1:Aircraft misuse case within a SysML use case diagram specified during the SecEP.

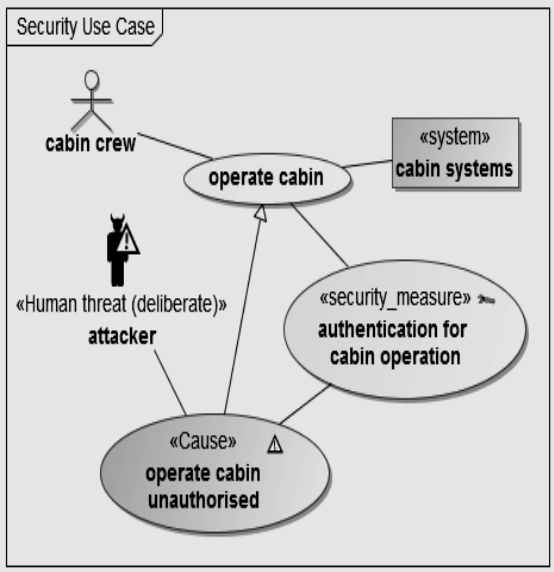


Figure 2: Aircraft security use case within a SysML use case diagram specified in the SEP

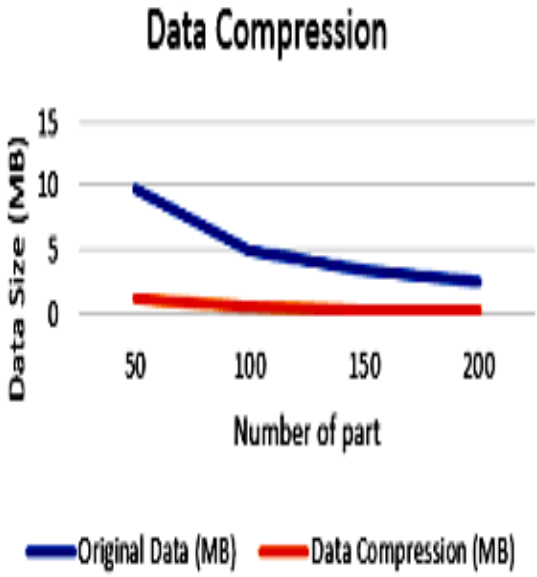


Figure 4: The Results of Data Compression

Juraj Hub -Passenger airplanes during the flight may be at risk. It could be due to human error effects on board or on the ground, due to different types of weather conditions, due to failures of machine or by the use of weapons against the airplane.

Abstract - A specific passenger airplane threat is the use of weapons against the airplane in flight, either from the outside or inside. The cause of inner firing on board a plane may occur in the event of a terrorist attack or an action of an armed escort on board against an assailant. In this case also the airframe might be affected. This paper describes and evaluates factors threatening the passenger airplane in service, with an emphasis on the possible use of small arms on board. The extent and importance of possible damage caused by firing with respect to the flight safety is evaluated. Possible measures are suggested in order to reduce the risk caused by firing on board.[3]

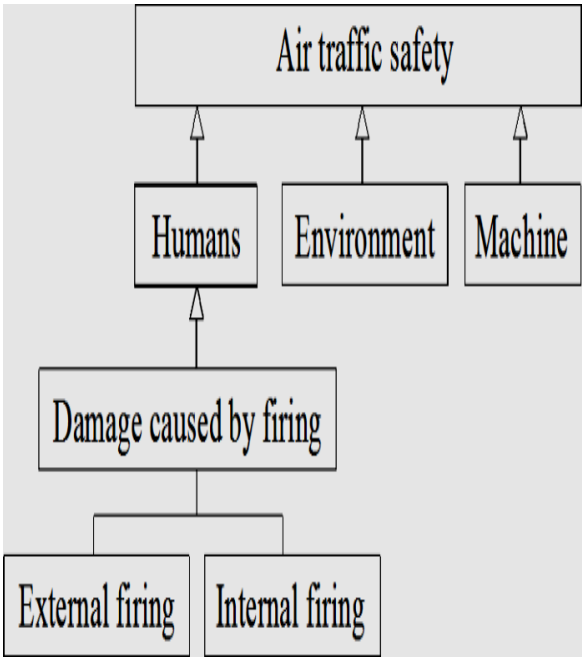


Figure5. Air traffic safety threatening factors

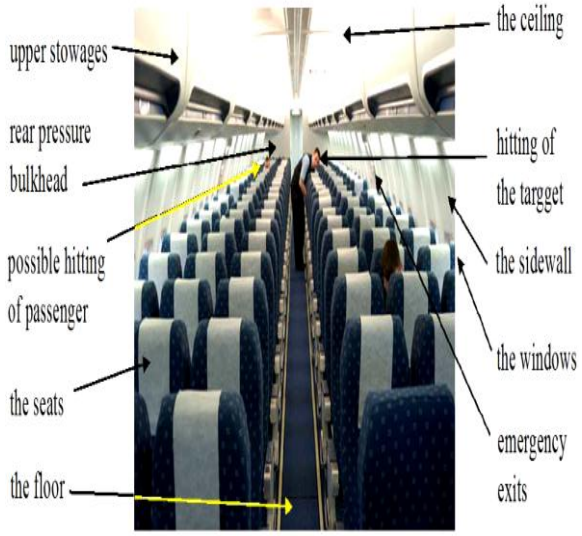


Figure 6. Localisations of possible hitting in case of firing on board the passenger airplane .

Andre Ananenko proposed on board safety of aircraft while landing the unavoidable situations or any changes in weather condition.

Abstract :The report examines the use of short-range radars (SR radar) on board a light aircraft to enhance flight safety during landing in conditions of limited or no optical visibility. Here reviews the main technical characteristics and

functional possibilities of SR radar. The basis of the construction of this radar was automotive radar (AR) of collision avoidance, created by a group of specialists of the Moscow Aviation Institute (National Research University). The first experimental results of the SR radar test conducted on a plane IKARUS C42 are discussed. It is established that as a result of processing radar images (RI), obtained by SR radar, it is possible to measure the distance to the border the runway and the course angle of aircraft to the runway direction, that allows to provide a safe of aircraft landing in conditions of limited or no optical visibility. [4].

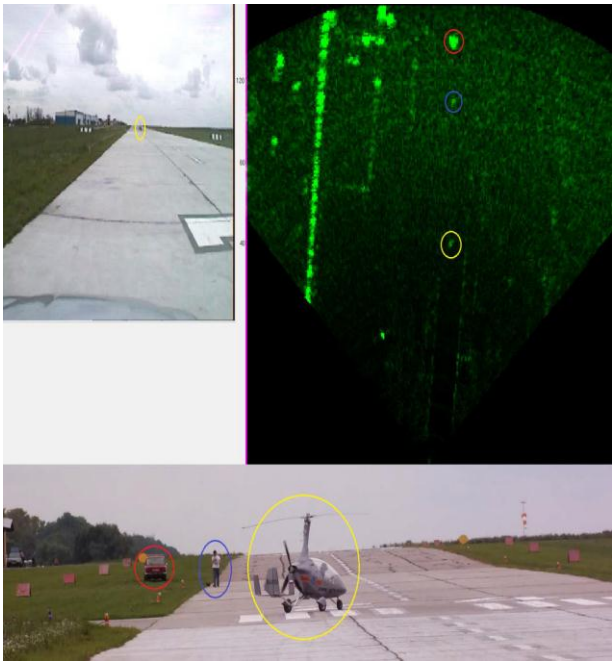


Figure 7. Radar and video image of the runway with gyroplane produced from the earth.

E.E. Dudnikov proposed for Hyperloop passenger systems, we are discussing the problem of ensuring the tightness of a passenger capsule due to ultra-low pressure in the tube of the system.Based on the example of a particular system, we calculate the estimated time for the expiration of air from the capsule in an emergency situation. As a result, we are discussing several ways to improve the level of passenger safety associated with the leakage problem.[5]

Figure 8: Hyperloop system

Binghao Hu proposed the Carrier aircraft's control system is the core system of carrier aircraft, the existing military standards such as MILSTD-882E fail to provide specific or sufficient division of safety sessions for the development cycle of such systems and don't specify the kind of safety analysis using, which allows the carrier aircraft's control system safety analysis can't be fully carried out.

Therefore, it's the urgent need to put forward a set of safety assessment process for the carrier aircraft's control system. Firstly, This article which submits a detailed work phases of the safety assessment process for carrier aircraft's control system, divides the process into preliminary hazard list and function hazard assessment, preliminary system safety assessment ,subsystem system safety assessment, System safety verification corresponding to its four development stages; Secondly, there have many different safety analysis methods which decided by the characteristic of each working stage ,such as Fault Tree.

Analysis and Failure modes and Effects Analysis to analysis component failure, Common Cause Analysis to analysis coupled dangerous, and analysis method for the interactive danger of carrier aircraft's control system is System Control Hazard Analysis; Finally it put forward a comprehensive safety assessment process of carrier aircraft's control system. Safety assessment process proposed this article can guarantee that the safety analysis work of carrier aircraft carries out smoothly.[6]

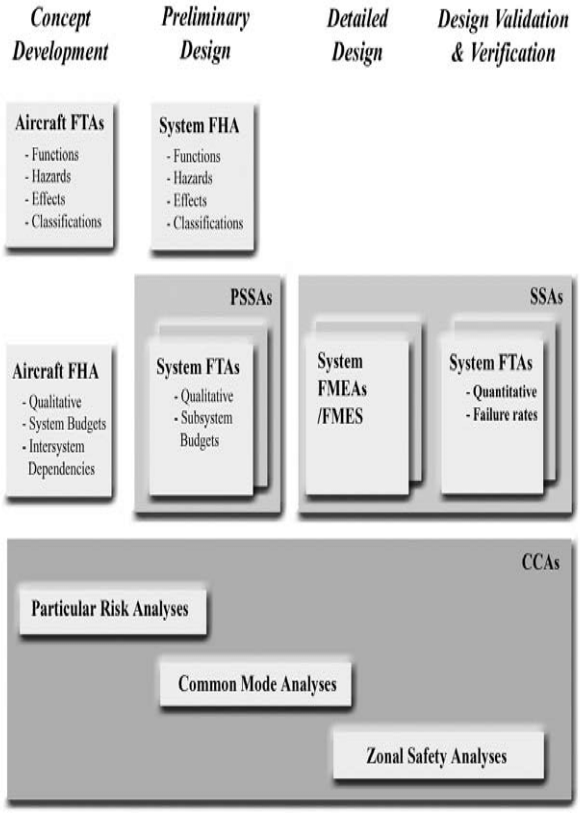
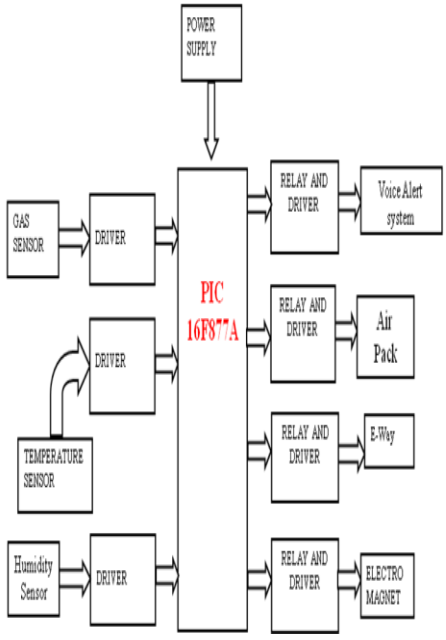


Figure 9. The safety assessment process

PROPOSED SYSTEM

In this system,if a plane detects any errors like Mechanical error, Firing. Pilot error,
Weather etc.
Then the capsule automatically detachable from front of the fuselage

BLOCK DIAGRAM



FIGURE

A.Detachment of capsule

B.Emergency during landing

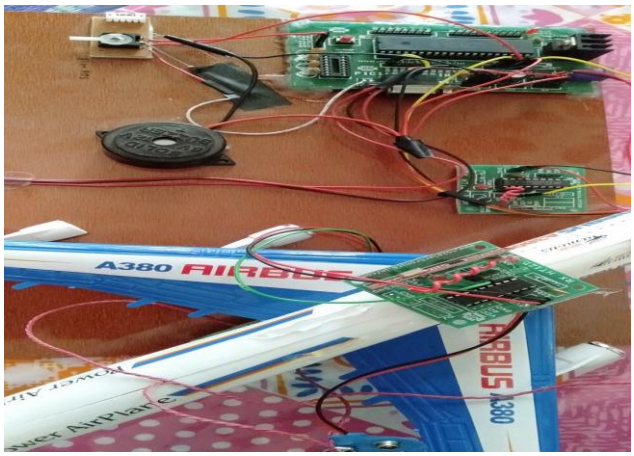
C.Splashdown

D.Landing

MERITS

1. 1)By using this type airplane safety system,we can save people through accident.
2. 2)The analysis of 80% accidents can be reduced with help of air plane safety system.

DESIGN AND IMPLEMENTATION



CASE STUDY

1)Plane crashes deaths in 2018 but accidents are still rare.wreckage is recovered from lion Air Flight 610,which crashed into the sea off Indonesia in October.(CNN)the number of people killed in plane crashes jumped in 2018 compared with the previous year,with more than 500 deaths recorded**.**

2)West air sweden flight 294 was a cargo service that crashed on 8th january 2016 during a flight from Oslo to Tromse,Norway approximately 30 minutes after takeoff,communication with the canadais CRJ200 was lost following a mayday call.

III. CONCLUSION

In this paper ,analysis of various issues occurs in air accident due abnormal condition of plane which results in loss of passenger lives.If accident happened while flying ,then capsule is deattached. By using this type airplane safety system,we can save people through accident.The analysis of 80% accidents can be reduced with help of air plane safety system

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