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ROLL-OVER CAMERAS ON COMMERCIAL PLANE

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ABSTRACT:

Airplane has fascinated mankind from centuries and countless successful as well as unsuccessful aircraft have been designed. Resent aircraft were restricted to low speed and low attitudes because of the drag on their wings. After few years later the main are of improvement were speed, range, and engine power. Supersonic aircraft faster than the speed of sound, a lot of supersonic aircraft but only few passenger carry aircraft have been produced. From the 19th century of aerospace design is focused on different points like, for all designers to minimize drag to avoid the fuel consumptions and mankind safety is the principle problem for all aircraft industries. Passengers Safety is becoming first priority for the aviation industries because of number of death due to structure, technical problems, human errors and lack of implementation advance technology were the main reasons. The death of passenger were higher between years 1950-1980.The main reasons of numbers deaths were technical problems during landing and during take-off and all other critical factor involves during this accidents . This paper presents, safety approach to design better aircraft to avoid loss of lives with help of previous investigation data and factor involving accidents

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Keywords: Fuselage (Nose and Mid-section), Tube Section Glass with Advanced Material, Camera with trail, Column Charts explains number of crash due to technical problems between years (1919 to 2018) analysis

INTRODUCTION:

We are living in modern world in which technology adapting in every second and update the previous so provide better function and gives 100% positive output. Before accepting new technology the industries are work on problems and analysis of data, potential behavior and most important risk of the technology before implication in commercial and scientific use. There are millions of death due to plane crash till this date. In time the lives can be prevented by implementation technology and design. We design the aircraft in such way that it will helps to reduce loss of passenger's upcoming time. The Fuselage (Nose and mid-Section) which will have aerodynamically design glass tube on top in which pressure will be maintained same as that of fuselage section with help of pressure sensors. In the glass tube section there will be trail to provide platform for camera to move along inside pressurized glass tube section, camera will help to capture the photos during traveling along with thermal image of all parts of plane to identify over heating or any damage due to overheating of any part of aircraft (Mounted Sensors on Camera) and send signal to

Computer controlled device then to EECU (Electronic Engine Control Unit) to avoid malfunction of technical system. Provide important data during an emergency situations.

1. Fuselage (Nose and Mid-section):

The Fuselage section design in such way that it reduce the drag and the weight of the aircraft is less to be more fuel efficient

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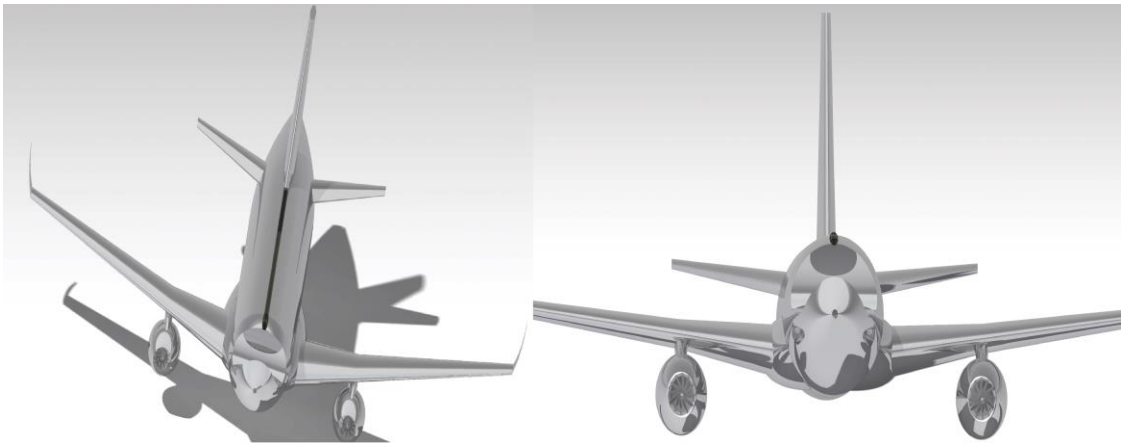

Fig .1-view of airplane

1.1 *Principle Reason of these invention* :

The invention behind this aircraft design (showed in fig.1 and 1.2) with the help of new technology crating new change in explanatory mechanisms and make it better and less subjective. Most important principle reasons of accidents its major factors and their analysis with help of risk assessment to prevent accidents and new approach to design for safety. Between years 1935-2018 major aircraft accident occurred due to engine malfunctions and technical aircraft difficulties.

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1.2. The fuselage section (main body)

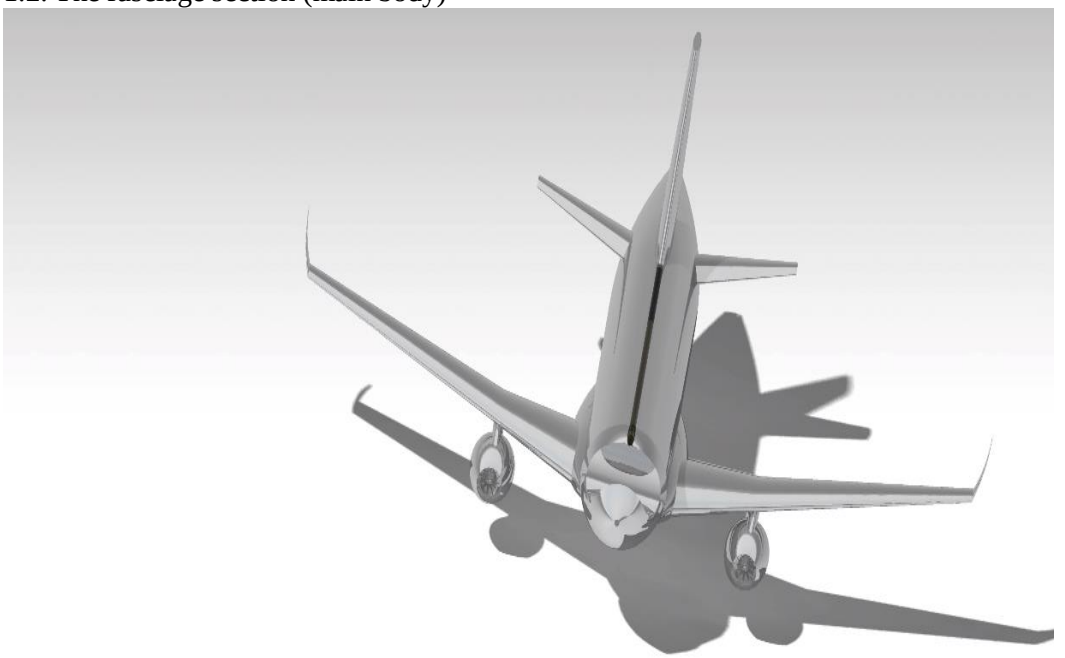

Fig 1.2. The Fuselage (main body)

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The pilot control aircraft with help of advanced automation system, it is important in today's world most of accident occurred due to inadequacy in communication between human and machine. This can be reduced with help of developed high tech system by analysis and study previous major factor involved in flawed system and interface design. Safety of aircraft is dependent on different sensor mounted on plane for collect data before an emergency and assistance to make wise decision during such circumstances

1.2.1Sensors:

There are sensors are mounted on fuselage nose, ahead of wing tip, on for body of fuselage also present to measure angle of attack .there may be error due to position error of installation and this error may varies due to variation in configuration. The overall error of an installation includes error peculiar to sensing device in addition to error due to the location of the device ,this sensing device error usually find out by wind test. Pressure and temperature of air measure with help of sensors which are mounted on engine and it controlled by electronic engine control unit and air face interface connector. Air pressure controlled by pressure equalizer value in both the cabin

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2. Tube Section Glass with Advanced Material:

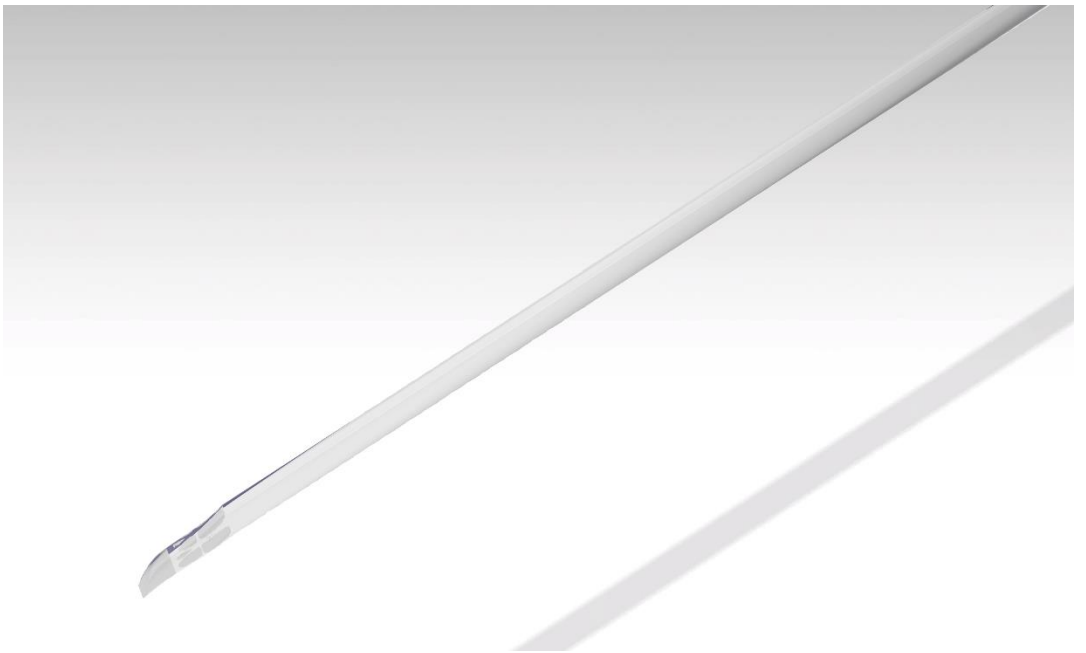

Fig 2. Tube Section Glass with advanced material

This glass tube assembly is core portion of this project, its features including drop nose which is perfectly aerodynamically design according to drag and visibility through rollover camera inside advanced martial glass tube showed in fig.2 .The pressure inside glass tube section maintained with help of pressure sensors. It's constructed in such way that the

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camera can easily pass-through this glass air pressure tube. Glass is design in such way that it has all property to sustain the stress and pressure and most important is less weight

3. Camera with Trail:

The main part of this project is camera which move along the platform or trail provided inside the glass tube and camera move along the trail and the surface of the camera assembly which contact with the trail. Because of point of contact between the camera-assembly surface and the platform trail surface on which camera moving, the camera-assembly can attained its maximum speed with less friction with help of rollers sets at inside the camera-assembly .Set of rollers provide frictionless motion inside glass tube section .The camera is position to obtain view different sensors and parts of plane .these different views helps to determine the range of problems might occur during difficult conditions ,send the date to computer software in which analysis is done and computer

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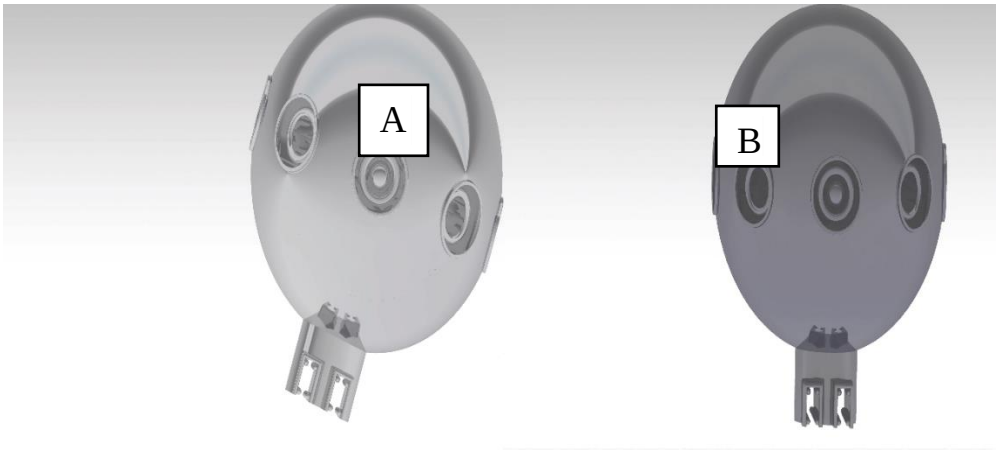

Fig 3. Camera with 360°of rotation (A: Camera with optical lenses features, B: Thermal Cameras)

Features of 360 °camera:

1. The main feature of camera is provide 360º vision also the camera is can be move in all directions (upward- downward, left-right).Which help to focus on all parts of aircraft

2. There are four thermal cameras (fig.3B)and four cameras with optical lance capabilities(fig.3A) all of the cameras provide extra lances to get better quality of visuals, it help to detect heat from parts of plane.

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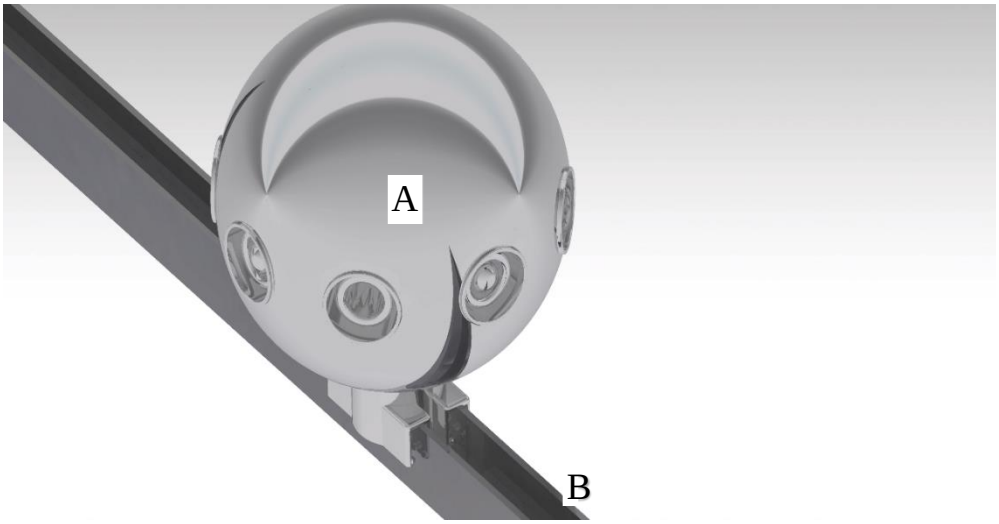

Fig 3.1. Camera with 360°of rotation with platform (A: camera, B: Platform on which camera move)

Working:

During the complex climatic conditions the sensor might get affected by either extreme-cold conditions or extreme-hot conditions. The data provided by them might contains error which may lead to engine failure or technical problem this situation can be solved by the camera-roller assembly. The camera moving along the provided platform and deliver the 360º (fig.3.3A)visuals of plane parts along with sensors data as there are four camera long with optical lens features and four thermal cameras are rotate and collect the data of each and

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every comports which mounted on plane, during each rotation the visuals taken by four optical lenses feature cameras and four thermal cameras is stored and if any critical changes in data is occurred as similar to stored data then it send signal to the computer system Unit it helps to avoid the malfunction of any part of aircraft. The signal are send only if previously store critical data carried in critical condition such as overheating of engine(uncontrolled and undesired release of energy) or data analysis done at maximum dangerous conditions are show the same data only then camera-assembly system send signal to CSU.

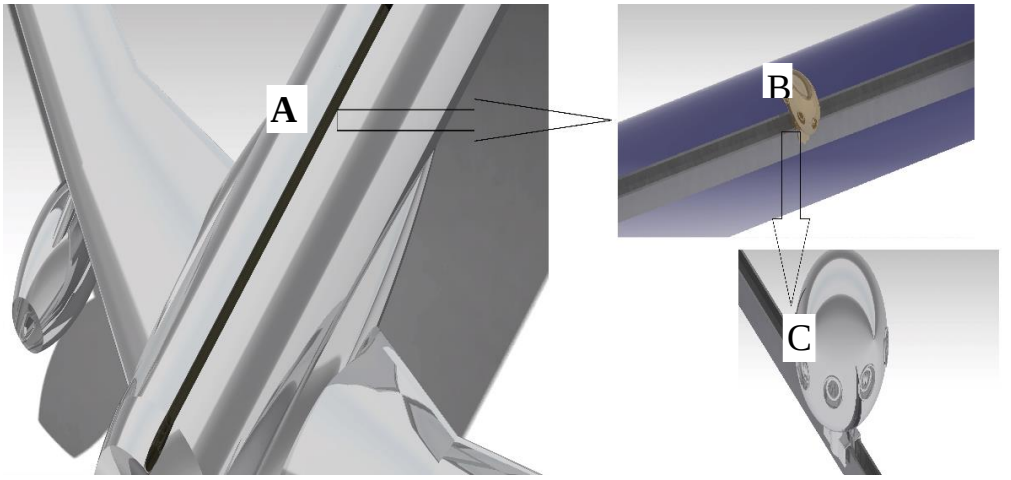

Fig 3.3. (The main camera-assembly inside the glass tube, A: Aerodynamically design Glass tube section on upper part of fuselage Section, B: detailed view of glass tube section and camera-platform assembly inside the Section, C: camera mounted on platform assembly)

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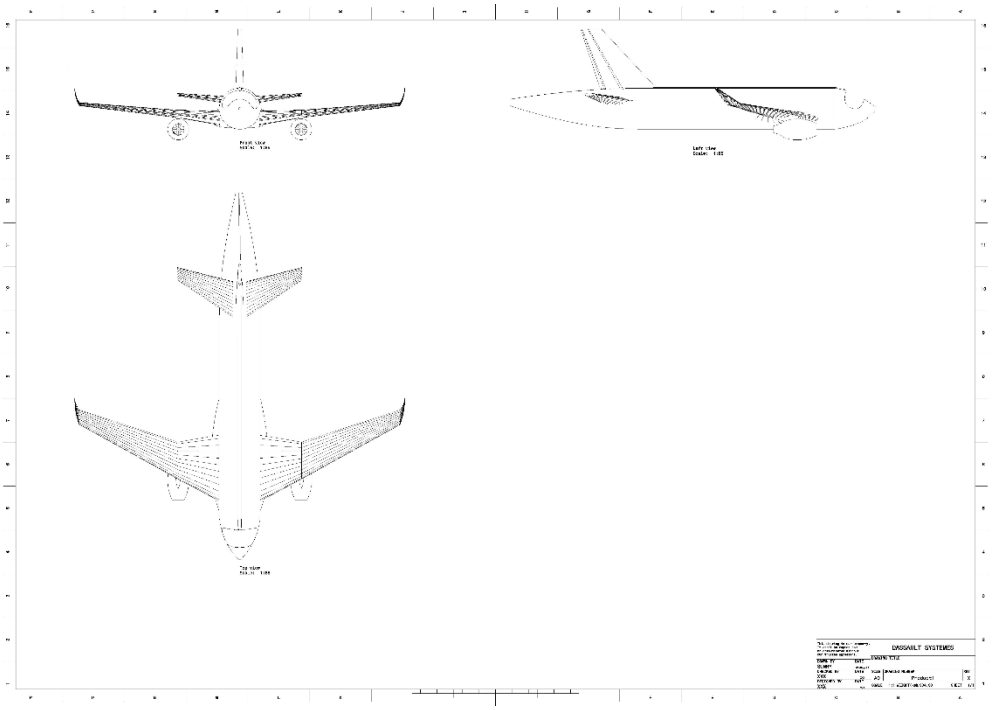

Fig .3.4 View of Aircraft

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4. Column-Charts explains number of crash reasons (1919 to 2018)

The column-chars provide information about number of incidents occurred between years 1919 to 2018, from month of January to December and the number of deaths occurs because of technical problems and other problems during these months.

Fig4.1.Number of Tecnical Reasons of plane crash in percantage occured in January (Between years 1919-1970)

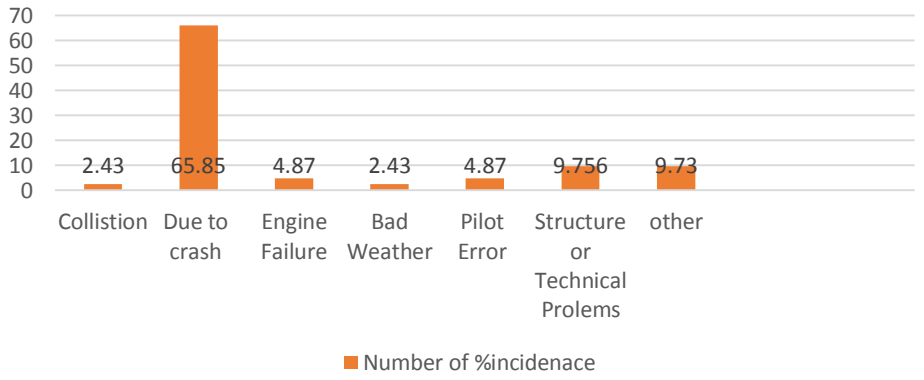

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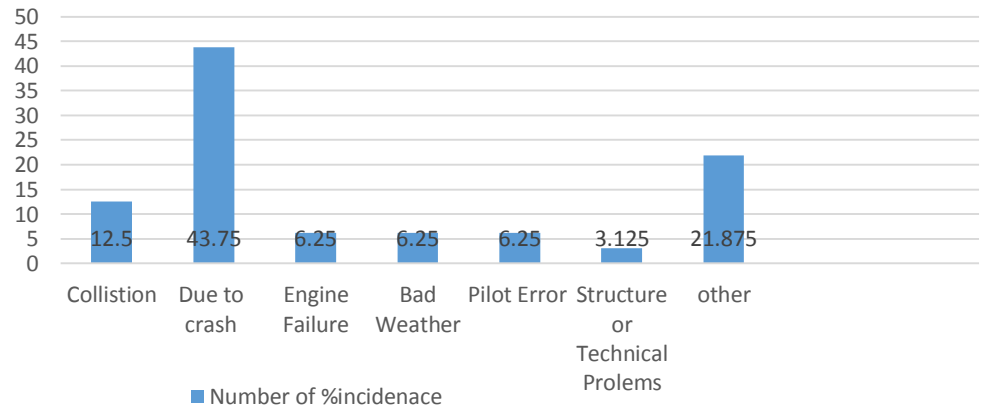
Fig4.2.Number of Tecnical Reasons of plane crash in percantage occured in february (Between years 1919-1970)



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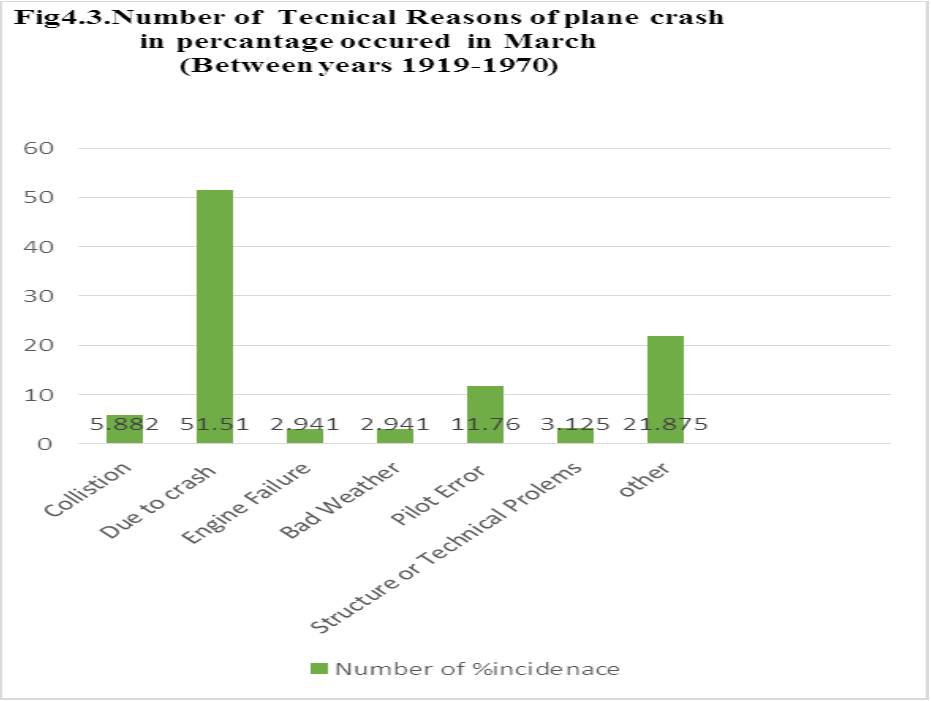

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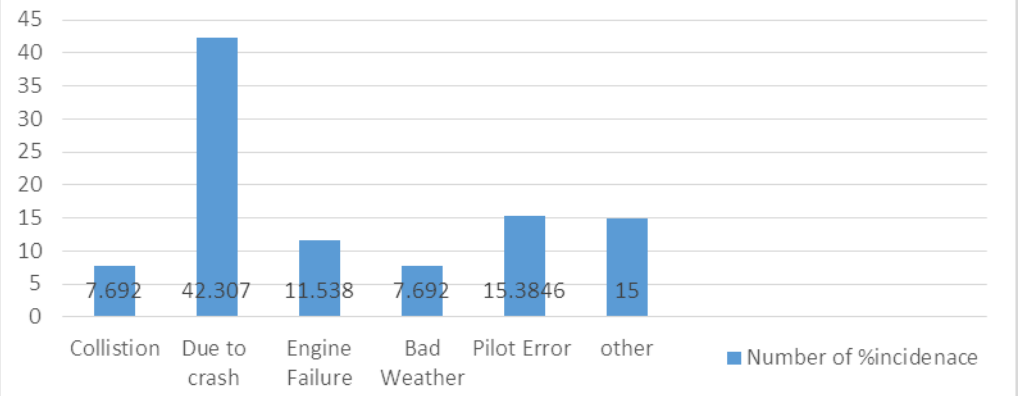
Fig4.4.Number of Tecnical Reasons of plane crash in percantage occured in April (Between years 1919-1970)



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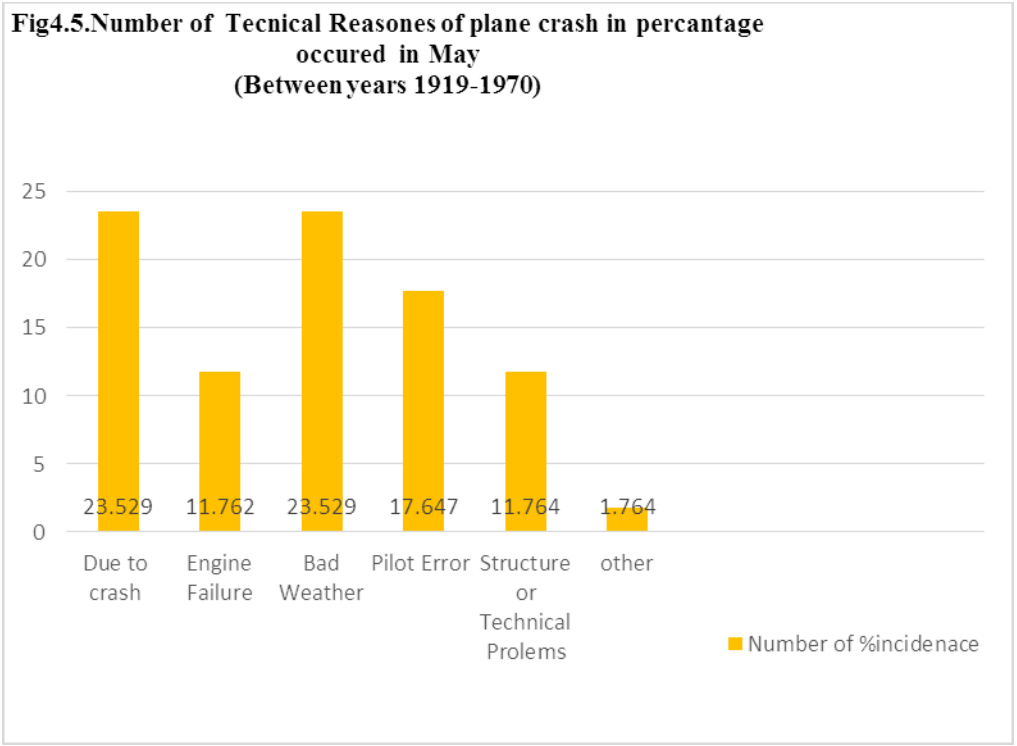

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Fig4.6.Number of Tecnical Reasones of plane crash in percantage occured in June (Between years 1919-1970)

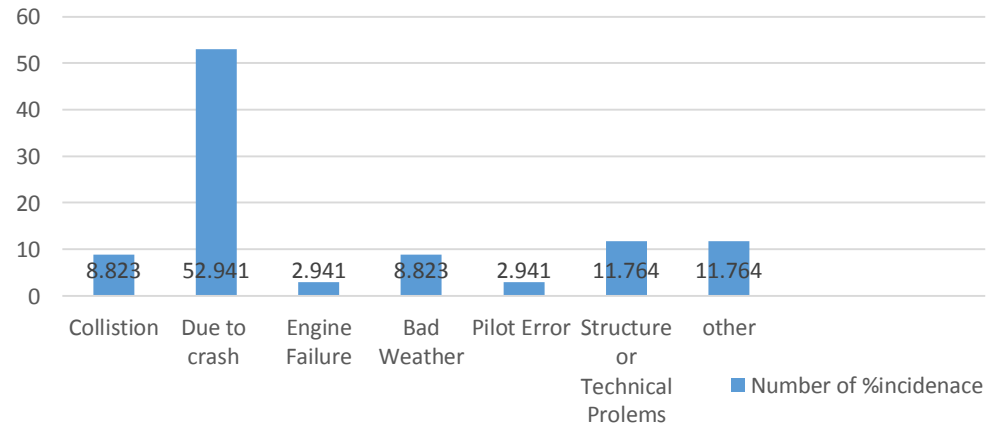

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Fig4.7.Number of Tecnical Reasones of plane crash in percantage occured in July (Between years 1919-1970)

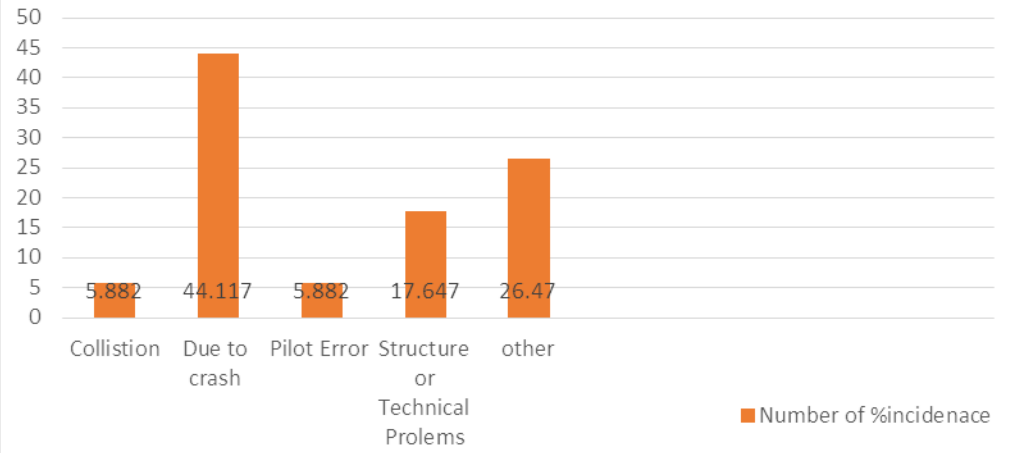

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Fig4.8.Number of Tecnical Reasones of plane crash in percantage occured in Auguast (Between years 1919-1970)

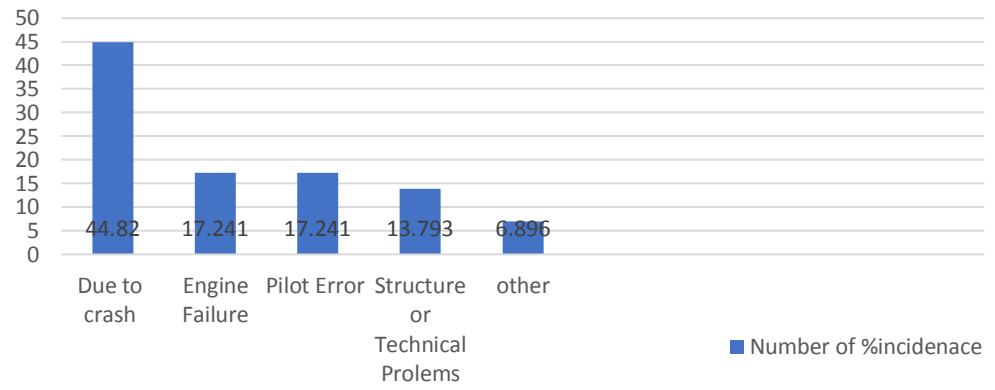

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Fig4.9.Number of Tecnical Reasones of plane crash in percantage occured in September (Between years 1919-1970)

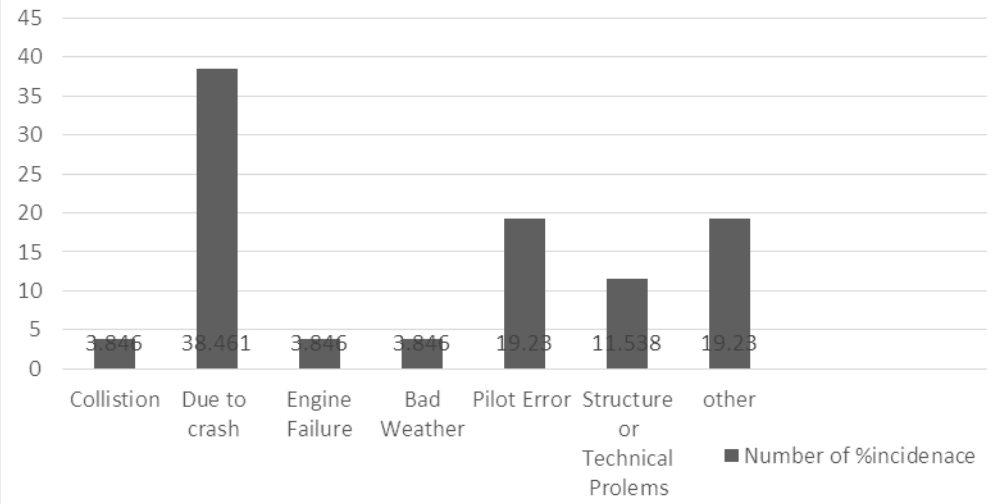

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Fig4.10.Number of Tecnical Reasones of plane crash in percantage occured in October (Between years 1919-1970)

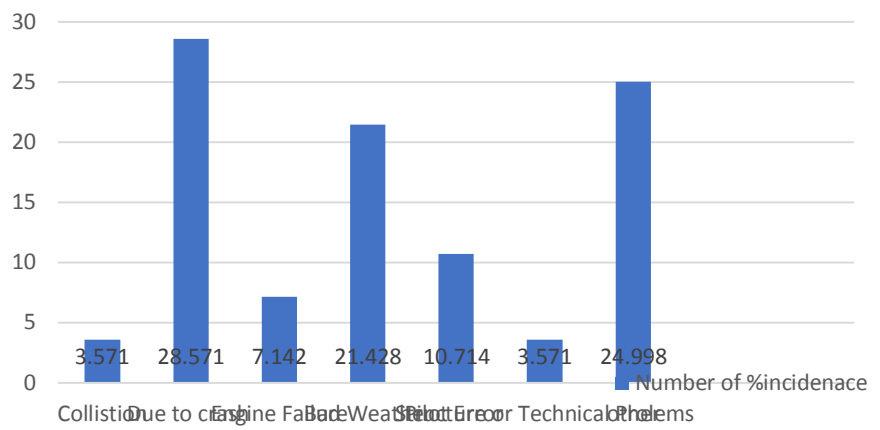

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Fig4.11.Number of Tecnical Reasones of plane crash in percantage occured in November (Between years 1919-1970)

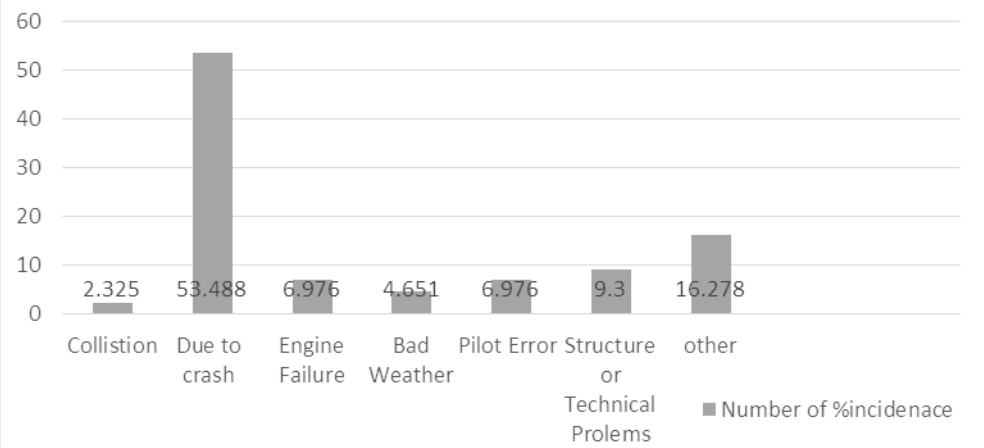

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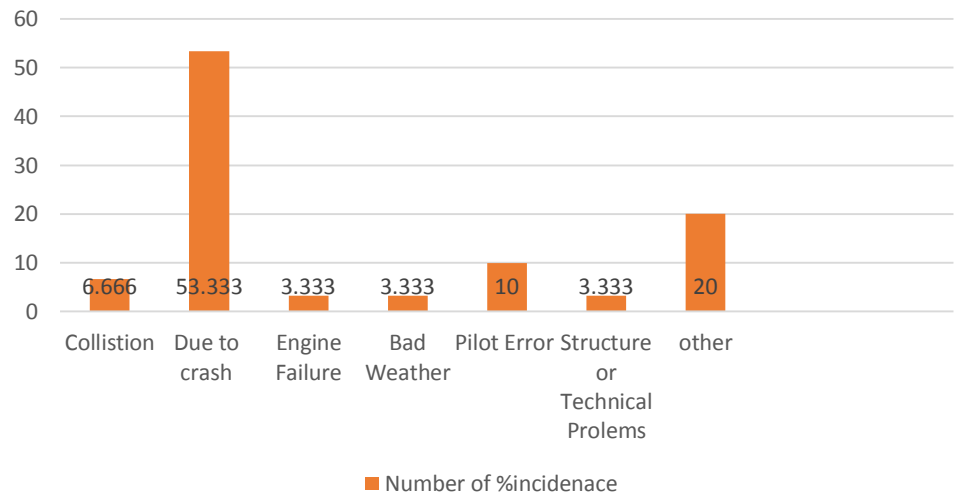
Fig4.12.Number of Tecnical Reasones of plane crash in percantage occured in December (Between years 1919-1970)



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[3] https://en.wikipedia.org/wiki/Camber_(aerodynamics)#Example_–_An_aerofoil_with_reflexed_camber_line