International Journal on Recent Researches in Science, Engineering & Technology (IJRRSET)
A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy. Journal Indexed in JIR, DIIF and SJIF.
Research Paper
Available online at: www.jrrset.com

ISSN (Print) : 2347-6729
ISSN (Online) : 2348-3105
Volume 6, Issue 9
May 2018.
JIR IF : 2.54
SJIF IF : 4.334
Cosmos: 5.395

Received on: 05.09.2018 Published on: 28.09.2018 Pages : 19 - 22

Ironclad: An Engineering Approach to Forbid Flight Hijacking

Dr.Rajashekhara, Dr. Ramaswamy
Jeppiar Engineering College, Chennai, TN, India

ABSTRACT:
In this paper we have given a suggestion in stopping hijacking in the most Effective way. IRONCLAD as means an unassailable method or a flawless device. We have designed a new method using the useful system of the body. This will definitely put a full stop to the things that threatens every one, if it is implemented properly. The method involves uncomplicated implementation of embedded systems and biomedical instrumentation. In research work heartbeat and temperature sensors were used. These sensors are located in all the traveler seats. The heartbeat and temperature of the human body are calculated and are constantly checked. There is always a quantum jump in the heart beat count and the temperature of a human body in times of tension. In case of any hijack, the human body will incidence the same, which is detected by the sensors and appropriate preventive events are in use automatically. The IRONCLAD deals with the detection and prevention of hijacking mechanically by combining the features of embedded and biomedical instrumentation for sensing the parameters. This reduces hardware cost, development time and space. The chips are inbuilt into a non-computing tool, which gives intellect to the system. Biomedical instrumentation provides necessary equipment for sensing the required parameters from the body. The camera gives the control to the system and for alerting the pilot.

KEYWORDS: Embedded systems , biomedical instrumentation, heartbeat and temperature, hijack

INTRODUCTION

NEED FOR IRONCLAD

In this modern technology development the threats for hijacking is increased in a random manner.
The occurrence on the WTC is the best example to show the increased threats and the shocking result. The aero plane is mainly focused for the kidnappings and threats since the passengers are mostly important people and the locating a particular person is not that difficult. on one occasion the plane is in the air we lose our controls over it, this enables the hijackers to use the situation. So a refined system with at most confidentiality should be employed to avoid these blunder happenings. The method we suggested would offer a required solution.

PRINCIPLE

Whenever the brain senses any threat of any sort there are continuously definite reactions taking place in our body. This practical change of the human body is used to detect the hazard inside an aero plane.

The heart beat and body temperature of a normal person rises sharply during this condition, this dissimilarity in the body is noticed for each and every traveller inside the cabin of the aero plane. The temperature is detected by using temperature sensor and the Heartbeat by an Infrared transmitter and receiver preparation with a Pulse generator. The values detected from these sensors are added and the mean value is founded. When there is a quantum change in the Heart beat count and body temperature the mean value exceeds the normal value. Then the micro controller provides the control to earth station and initiates the camera inside the flight. The states are observed manually and the controls are given to the flight accordingly. The controller used for this purpose is Peripheral Interface Controller (PIC) which has many structures inbuilt in it, that satisfies the supplies needed here.

Sensing and Reporting

The heart beat sensors and the temperature sensors positioned in the seats constantly send the signals to the microcontroller. The variations in the Heart beat count and the body Temperature is reported then and there to the microcontroller.

Manual Monitoring

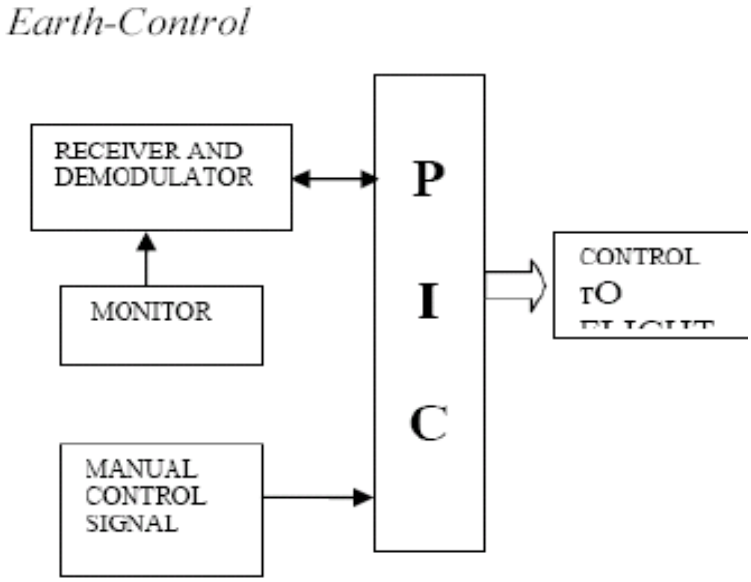
Once there is an alert signal send by the micro controller, the cameras are activated and are observed in the earth station. The gas has a nature of making the human being unconscious when inhaled. If there is no consideration via the camera, by the pilot or by the earth station, the gas is free automatically after a minute.

DESIGNING AND IMPLEMENTATION

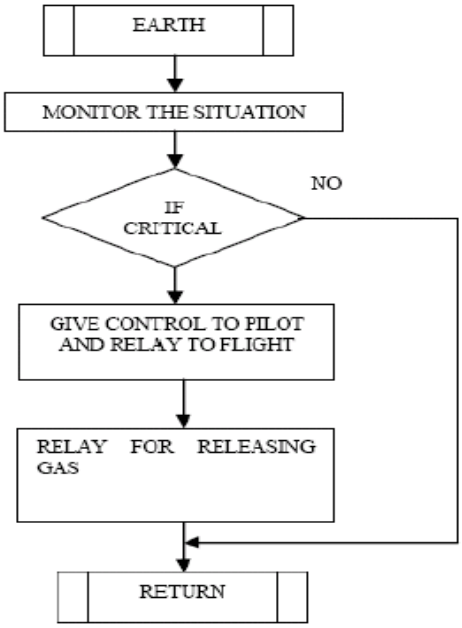
BLOCK DIAGRAM

Embedded Design
Some of its advantages include

- Faster execution speed.
- Higher reliability since less number of components.
- Reduced failure ratio.



PROCESS LAYOUTS



NICETIES

Heart beat Sensor
The changes of the heart sounds into electrical signals can be done by a Variety of transducers viz., condenser microphone, moving coil microphone, piezoelectric crystal, carbon microphone, etc. There are two main classes of micro phone used in phonocardiography.
1. Air coupled micro phone.
2. Contact microphone.
Temperature Sensor (LM335)
The LM 335 series are precision, easily calibrated integrated circuit temperature
sensors operating as a 2-terminal zener. The LM335 has a breakdown voltage directly proportional to absolute temperature at +10mV/ºK. With less than 1W dynamic impedance the device operates over a current range of 400HA to 5mA with virtually no change in performance.
Features

- • directly calibrated in Kelvin.
- • 1°C initial accuracy available.
- • Operates from 400Ha to 5ma.
- • Easily calibrated.
- • Wide operating temperature range.

Facts about PIC
• It has a 16 bit flash memory.
• It is one lakh times erasable and writable.
• Code protection is available.
• Data retention is about 75 years.

CONCLUSION

Even in the slightest possibility we should allow mankind to face danger. This is
Impossible but the effort shouldn't be ceased in any way. Every person should come whole heartedly to ensure security to the civilians against the most vicious persons present. This is one of the ideas,

which provide security in an Aeroplane against the hijackers. This method may have some flaws and hurdles as it's in the preliminary stage, when it comes to real time the problems will be overcome and it can be implemented successfully.

REFERENCES

[1] Amlaner, Charles J. Bio-Telemetry University of Arkansas press, Fayetteville, Arkansas, 1989. Biotelemetry and Patient Monitoring Journal. Volumes 7-8 1982.
[2] G. Patil, Medical Electronics. Prentice-Hall of India Pvt Ltd. New Delhi.
[3] Srovnal, V. Development of a flight control system for an ultra-light airplane, Computer Science and Information Technology, 2008. IMCSIT 2008. International Multi conference Dept. of Meas. & Control, VSB-Tech. Univ. of Ostrava, OstravaKotzian, J. pp: 745-750.