MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY

Department of Computer Science and Engineering

Paper on Hardware of IDP -2

Course Code: CSE-460

Course Name: IDP-2 (Spring 2021)

Group Name: Echo - Sec A

Project Name: Health Monitoring of A Pilot With IoT Wristband

Health Monitoring Of A Pilot With IoT Wristband

Aim:

To design and implement a health monitoring system for pilots which will save lives as well as valuables.

Group Members:

1. Maj Rezoan (201814002)
2. Flg Offr Nafiun (201814011)
3. Lt Mostofa (201714111)
4. Offr Cdt Arnob (201814010)
5. Offr Cdt Khan (201814012)

Introduction:

Our project includes a digital wristband and a mobile app with a base station in the way of them. Data analysis will be done by taking reading from the smart wristband of the pilot. The data will be sent to the ATC base station via RF. There we will get a reading in a serial display and again that same data will be sent to the mobile app via Bluetooth for analysis. By analyzing the data, signal will be given based on the health condition of pilot flying the aircraft. There will be given standard readings based on which normal, moderate and acute abnormal condition will be checked and necessary signals will be given to the pilot to take necessary actions. For emergency cases online health officials will be connected.

Components:

1. Bluetooth HC06
2. Temperature sensor
3. Accelerometer
4. Arduino nano
5. Pulse oximeter/Heart rate sensor
6. Battery Li-po
7. Wires
8. Accessories
9. Jumper wires
10. Wrist band

11. Soldering Iron

12. Resin

13. Rung

14. PW SW

15. Casing & Strap

16. Buzzer

17. Glue Gun & Stick

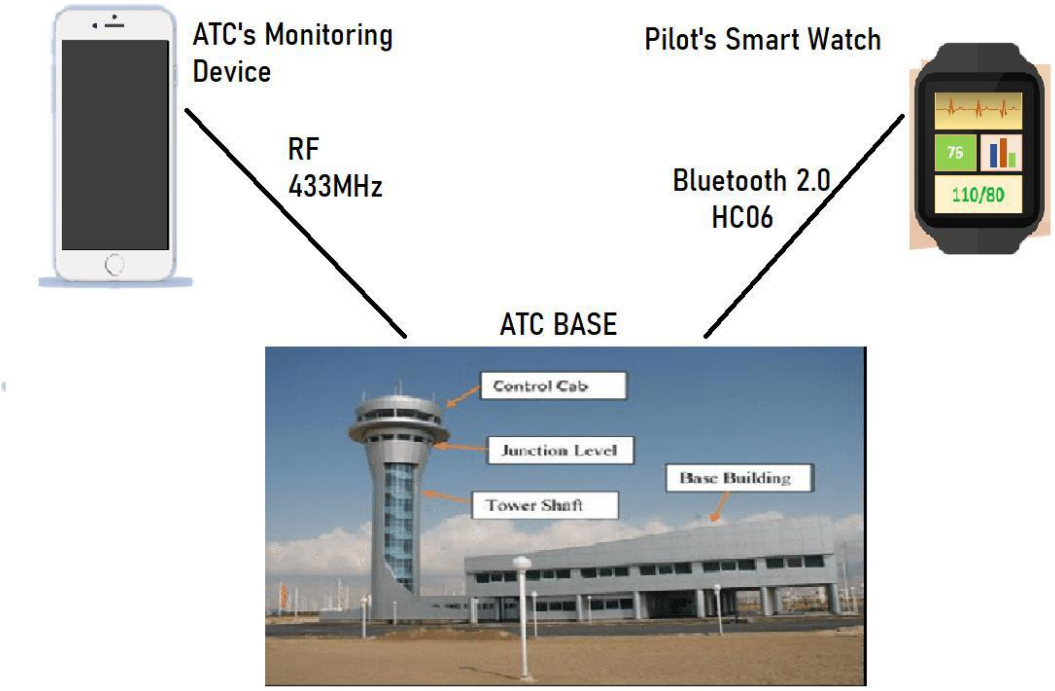
18. Arduino Mega

19. RF Tx + Rx

20. Display

21. Adapter

Internal Communication:



Circuit Diagram:

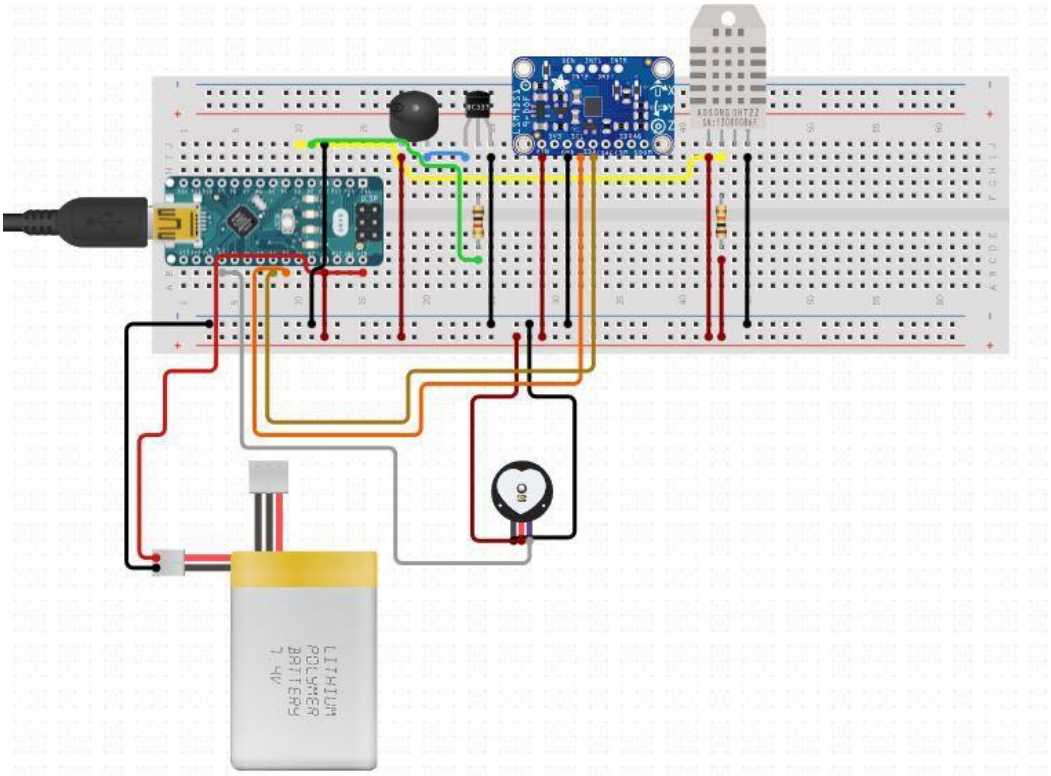


Fig: The Wrist Watch

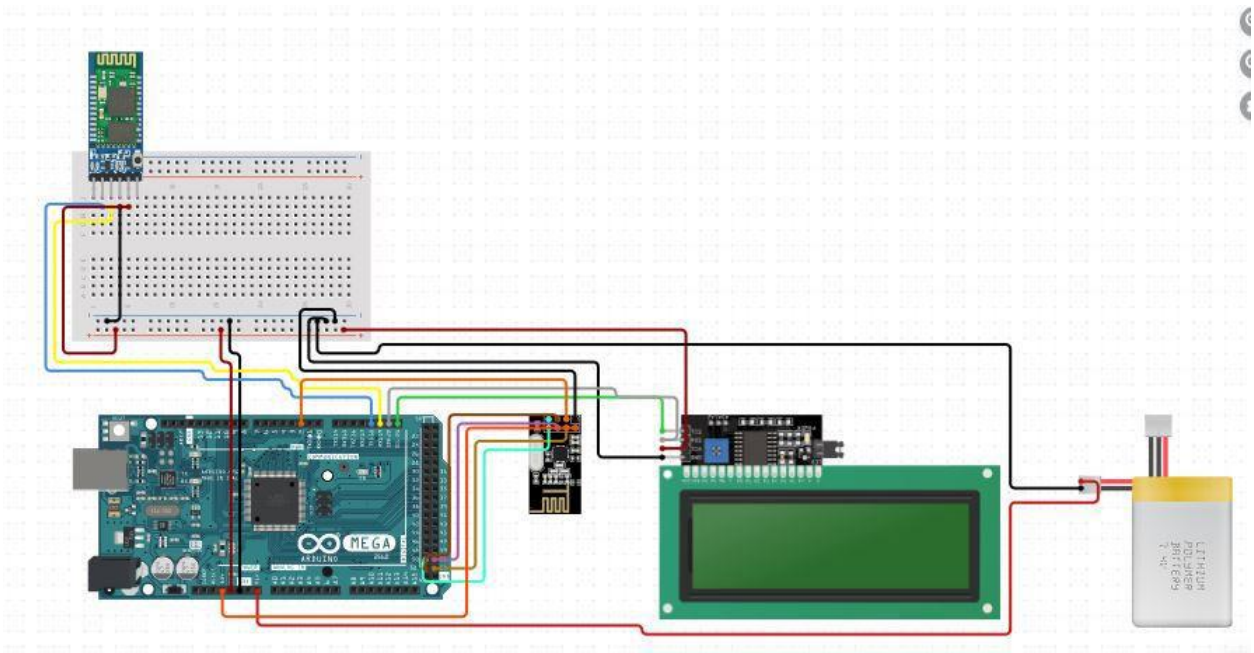


Fig: ATC Base Station

Timeline:

Week	Tasks	Members
3rd	Setting up of sensors (pulse oximeter)	Flg Offr Nafiun, OC Arnob
4th	Setting up of sensors (temperature, pressure)	Lt Mostofa, OC Khan
5th	Setting up of Base Station	Maj Rezoan, Flg Offr Nafiun
6th	Power (Watch + Base Station)	Maj Rezoan, OC Arnob
7th	Arduino coding (Watch)	Lt Mostofa, OC Khan
8th	Arduino coding (Base Station)	Maj Rezoan, Flg Offr Nafiun
9th	RF Communication (Watch to Base Station)	Lt Mostofa, OC Khan
10th	Bluetooth Comm (Base Station to Mobile)	Flg Offr Nafiun, OC Arnob
11th	Total Comm (Watch + Base Station + Mobile)	Maj Rezoan, Lt Mostofa
12th	Final Testing	All Members
13th	Project Submission	All Members
14th	Project Submission	All Members

Updates:

We have newly added a buzzer to the watch as an alarm to the emergency signal from ATC. Additionally, we have added up a Base Station in between the watch and the mobile app.

The watch will communicate with the Base Station via RF and the signal or data will be sent to the mobile app via Bluetooth for analyzing.