INTEGRATED DESIGN PROJECT

CSE-460

Project Plan

Group E (Sec A)

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Table of Contents

1. Introduction.

1.1 Document Purpose.

A project plan is a formal document designed to guide the control and execution of a project. A project plan is the key to a successful project and is the most important document that needs to be created when starting any business project. The purpose of the Project Plan is to gather all information necessary to control the project. Project team members use it to understand what they need to do, when they need to do it, and what other activities they are dependent upon. The purpose of documentation is to describe the use, operation, maintenance, or design of software or hardware through the use of manuals, listings, diagrams, and other hard- or soft-copy written and graphic materials.

1.2 Associated Documents.

Apart from project planning documents, Software Requirements Specification (SRS), Project proposal, Project Paper, Project Scheduling and Project Budget Analysis papers. Dataflow Diagram, Workflow Diagram, System Development Report etc. are prepared.

1.3 Project Plan Maintenance.

Project Plan defines the complete structure of the project. Planning for the project might change on basis of requirements of the clients. Besides, certain situation while developing the project might enhance the developers with permission from client to change the project plan. However, any changes in the project plan is brought and properly documented on consent of both client and project director.

2. Project Scope.

2.1 Objectives.

1. Making an effective IoT wristband to monitor pilot's health during flight.
2. To allow the admin a scope of monitoring the results through android app and thereby the flight surgeons will be able to provide necessary decision for the safety of pilot as well as aircraft.
3. To allow pilot to see their health status after completion of a mission.

2.2 Success Criteria.

1. The first step of success depends on the successful data collection from various sensors. This system is going to identify the health condition of the pilot.
2. After collecting data, the system must be able to send it through the RF module to the ATC tower.
3. The system should be able to show the data in LED display in ATC tower.
4. The software should notify the authorized personnel about the health condition of the pilot and in emergency it should to be notified pilot also.
5. At the end, the UI of the system has to be easy for authorized personnel to use the system.

3. Deliverables.

3.1 To Client.

Client of the project are Bangladesh Air force and Civil Airlines. It is required to find out objects that should be delivered to the client and list them and make documentation. Firstly, the developer team needs to collect information from the client to make prototype and deliver them for feedback. Then, temporary executable project is created for test analysis. In this the developers need to list which sensors and hardwires are suitable for the project, minimum and maximum threshold value of the oxygen level, temperature, humidity, mechanical part that are required for procurement etc. Finally, the client is given an estimation time about project delivery date.

3.2 From Client.

To make project properly suitable for client, the developing team needs feedback from the client side. For their better understanding, documentation is essential. Documentation can contain nontechnical terms or technical terms with explanation. Documentation should be delivered frequently to the client for review. Test analysis need to be based on real time activities. After using the updated project and data can be collected from client and find out output accuracy. User can recommend certain changes. Also, the developer team need to give them support for further change in system.

4. Project Approach.

Agile methodology has been adopted to carry out the proposed system from the beginning to end. As the proposed system is divided into different functionality, it needs to check the result after the completion of each functionality. Each step as illustrated in Figure 4.1 has a significant impact on the next step of the system. Agile software development is an approach to software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customer(s)/end user(s). It advocates adaptive planning, evolutionary development, early delivery, and continual improvement, it also encourages rapid and flexible response to change. Following agile methodology can result the maximum efficiency of the software development.

Figure-4.1: Agile Methodology

4.1 Project Team Organization.

We have divided our project in few parts and distributed the task among five group members as follows:

Task Name	Resource Names
Health Monitoring of a Pilot	
Initiation	
Grouping	
Project proposal	Maj Rezoan,Flg Offr Nafiun
Project approval	Flg Offr Nafiun,OC Arnob
Planing	
Micro plan of unit components	Lt Anindya,OC Khan
Initial Report Submission	Flg Offr Nafiun,OC Khan
Details plan & Allocation	Maj Rezoan,OC Arnob
Details Project plan Presentation	Lt Anindya,Flg Offr Nafiun
Initial SRS Deposition	
SRS Preparation	Lt Anindya, Flg Offr Nafiun
Initial SRS Submission	Flg Offr Nafiun,OC Khan
Concept	
Knowledge Gathering on various Physiological and brain data	Flg Offr Nafiun,OC Arnob
Comparative Analysis of necessary physiological data	Lt Anindya,OC Khan
Comparative analysis of machine learning Algorithms to be compared	Maj Rezoan,OC Khan
Design	
System Architecture Design	OC Khan
Work Flow Design	Maj Rezoan
Presentation of System Architecture & Work Flow Design	Maj Rezoan
UI Design	Maj Rezoan, Flg Offr Nafiun
Approval of UI Design	Maj Rezoan
Development	
Creating GUI for software	Maj Rezoan, Flg Offr Nafiun
Construction of Database using Firebase	Maj Rezoan
Linking of Frontend and Backend	Maj Rezoan, Flg Offr Nafiun
Software Development for Data Analysis	Maj Rezoan, Flg Ofr Nafiun
Completion of UI Design	
Finding achievable data to measure health condition	OC Khan
Acquiring sensor data from wristband	OC Arnob, Lt Anindya
Validating Threshold of different data	Maj Rezoan, OC Arnob
Setting up the base	Flg Offr Nafiun, OC Khan
Completion of Hardware Dataset Acquisition	Lt Anindya, OC Khan
Creation of Required Dataset through merging	Maj Rezoan
Integration	
Integrate GUI and software for data analysis	Maj Rezoan, Flg Offr Nafiun
Integrate Hardware and software	Flg Offr Nafiun, OC Arnob
Integration of the total System	Maj Rezoan, Lt Anindya

Testing &Evaluation	
Testing of data accuracy of the sensors	Maj Rezoan, Lt Anindya
Testing of power supply and consistency	Lt Anindya, OC Arnob
Testing of software app	OC Khan, OC Arnob
Identify anomalies of product specification	Flg Offr Nafiun
Modify Code and Hardware based on Unit Testing	OC Arnob, Lt Anindya
Setting up connection between base and watch	Lt Anindya, OC Khan
Integration Testing	Flg Offr Nafiun, Maj Rezoan
Test Integration of Hardware and software	Maj Rezoan, OC Khan
Test Integration of frontend and backend	Flg Offr Nafiun
Consistency Check of RF module & Bluetooth connection	OC Arnob, Lt Anindya
Finalizing the system	Maj Rezoan
Documentation	Flg Offr Nafiun
Final SRS Preparation	OC Arnob, Flg Offr Nafiun
Software Testing Document	OC Khan, Lt Anindya
Software Quality Assurance Document	Lt Anindya, Maj Rezoan
Final Report	Maj Rezoan, OC Khan
UI Development Report	Maj Rezoan, Lt Anindya
System Development Report	OC Arnob, Flg Offr Nafiun
Experiment Design Document	Flg Offr Nafiun, Lt Anindya
Project Plan Document	OC Arnob, OC Khan
User manual document	Maj Rezoan, Flg Offr Nafiun
Software Documentation Submission	
Delivery	Maj Rezoan, Flg Offr Nafiun
Closing	
Closing Presentation	**Maj Rezoan, Lt Anindya, Flg Offr Nafiun,OC Arnob, OC Khan**

Besides, a the overall progress is continuously being monitored by the Team Leader.

5. Work Plan.

5.1 Work Breakdown Structure.

The project work plan is attached to this paper as appendix.

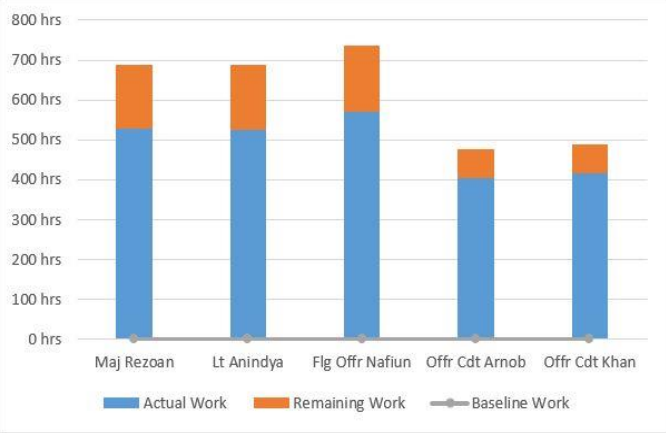
5.2 Resources.

The resource distribution of the project is shown in the attached Gantt chart. Besides, documentations (project proposal, SRS, project plan, project scheduling, estimation of cost etc.) are attached with the project plan.

RESOURCE OVERVIEW

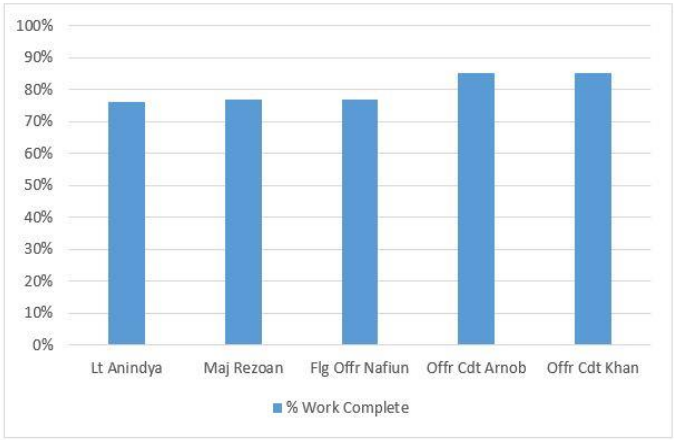
RESOURCE STATS

Work status for all work resources.



WORK STATUS

% work done by all the work resources.



RESOURCE STATUS

Remaing work for all work resources.

Name	Start	Finish	Remaining Work
Maj Rezoan	Thu 7/2/20	Thu 6/3/21	159.52 hrs
Lt Anindya	Thu 7/2/20	Thu 6/3/21	162.72 hrs
Flg Offr Nafiun	Thu 7/2/20	Thu 6/3/21	165.72 hrs
Offr Cdt Arnob	Thu 7/2/20	Thu 6/3/21	72.52 hrs
Offr Cdt Khan	Thu 7/2/20	Thu 6/3/21	72.52 hrs

6. Milestones.

The milestones of the project are shown in table 6.1.

MILESTONE REPORT

LATE MILESTONES

Milestones that are past due.

Name	Finish

MILESTONES UP NEXT

Milestones due in the upcoming months.

Name	Finish
Development Finished	Thu 5/20/21
Analysis/On ground check	Fri 5/21/21
Documentation	Wed 6/9/21
Testing Done	Wed 6/9/21
Delivery of Project	Thu 6/10/21

COMPLETED MILESTONES

Milestones that are 100% complete.

Name	Finish
Project Approval	Thu 7/23/20
Project Approval Completed	Thu 7/23/20
Report submission	Fri 8/14/20
Plan Complete	Fri 8/28/20
Concept Updated	Wed 10/7/20
Materials Collected	Thu 11/12/20
Design Finished	Mon 4/12/21

7. Risks, Constraints and Assumptions.

This section will discuss initial Risks, Constraints and few Assumptions that were identified during initial project planning. Assessment attempts to identify, characterize, prioritize and document a mitigation approach relative to those risks which were identified prior to the start and during the project time-line. The Risk Assessment will be continuously monitored and updated throughout the life of the project, with further assessments which the Project Manager is allowed to amend. A constraint in project management are the restriction that limits project's desired outcome. Project constraint is one of the important factors that influences the project. It is a determinant factor to decide whether to continue the project or not. Basing on cumulative study, few constraints are identified for future references and address those once needed. To mitigate gaps within the risks and constraints and to allow the project move forward, few assumptions are made for supporting the decision of the stakeholders

7.1 Risks.

The risks of the project are discussed in the following Risk table:

Risks of Project					
Risk ID	**Risk Description**	**Mitigation Plan (what to do to avoid the risk occurring)**	**Contingency Plan (what to do if the risk occurs)**	**Impact (what the impact will be to the project if the risk occurs)**	**Likelihood of occurrence (e.g., %, or high / medium / low)**
01.	Inaccuracy of data	Prior checking of equipment's	Check equipment's regularly	Receiving of inaccurate data	Medium
02.	Connection loss	Proper fixation of wearable devices	The devices to be fixed correctly	Connection loss will make the whole system shut down	Medium

7.2 Constraints.

7.2.1 Project Constraints.

The following represent known project constraints:

1. Project funding sources are limited, with no contingency.
2. Due to present situation of the COVID-19 pandemic, it is getting difficult to manage all the required equipment to complete the project.

7.2.2 Critical Project Barriers.

Unlike risks, critical project barriers are insurmountable issues that can be destructive to a project's initiative. In this project, the following are possible critical barriers:

1. Removal of project funding
2. Unavailability of resources

Should any of these events occur, the Project Plan would become invalid.

7.2.3 Assumptions.

The following assumptions were made in preparing the Project Plan:

1. For the safety of the life of the pilot and passengers and the aircraft, it is necessary to monitor the physical condition of the pilot on flight.
2. Management will ensure that project team members are available as needed to complete project tasks and objectives.
3. Failure to identify changes to draft deliverables within the time specified in the project time-line will result in project delays.
4. Project team members will adhere to the Communications Plan.
5. 5. All project participants will abide by the guidelines identified within this plan. The Project Plan may change as new information and issues are revealed

8. Financial Plan.

A Financial Plan identifies the Project Finance (i.e. money) needed to meet specific objectives. The Financial Plan defines all of the various types of expenses that a project will incur (labor, equipment, materials and administration costs) along with an estimation of the value of each expense. A proposed financial plan for the project is tabulated here.

Ser	Category	Items	Qty	Unit Cost	Total Cost
1.	Cost Of Materials	Arduino UNO	2	450	900/=
2.		HC-05 Bluetooth Communication Module	1	260	260/=
3.		BME/BMP 280	1	200	200/=
4.		GY-61 Accelerometer	1	730	730/=
5.		MAX 30102	1	450	450/=
6.		Buzzer	1	10	10/=
7.		NRF 24L01	1	180	180/=
8.		16*4 LCD	1	300	300/=
9.		MISC	-	-	1500/=
	Total Cost		**4530/=**		