MOBILE SYSTEMS FOR INSTITUTE OF HUMAN ORIGINS
SOFTWARE PROJECT CHARTER

Software Factory Project
Department of Software Engineering - CIDSE
Arizona State University, Polytechnic
Version 1.0

1. INTRODUCTION

This is the software system proposal document for the IHO project sponsored by Timothy Lindquist, Richard Whitehouse and Julie Russ.

This project is being undertaken by the ***hackSlash*** development team. The team is comprised of graduate students majoring in Software Engineering at Arizona State University, Polytechnic. The team members are enrolled in a two-semester capstone project course required of all graduate majors. Successful delivery of the desired software product will fulfill the software factory project requirement for the student team members.

- ***Project Sponsors*:**

  1) Name: Dr. Timothy Lindquist
     Title: Professor
     Company or Organization name: Arizona State University
     Contact information (phone number and Email address): Timothy.Lindquist@asu.edu

  2) Name: Richard Whitehouse
     Title: Senior Lecturer
     Company or Organization name: Arizona State University
     Contact information (phone number and Email address): row@asu.edu

  3) Name: Julie Russ
     Title: Assistant Director, Institute of Human Origin
     Company or Organization name: Arizona State University
     Contact information (phone number and Email address): jruss@asu.edu

- ***Development Team (Team-hackSlash) :***

  1) Arpit Jaiswal, ajaiswa2@asu.edu, (+1 480-7497626)

  2) Gowtham Nayak, gnayak2@asu.edu, (+1 480-616-4902)

  3) Mihir Bhatt, mbbhatt@asu.edu, (+1 480-823-6878)

  4) Senthamil Sindhu, sbalas24@asu.edu, (+1 480-616-5452)

  5) Sweta Singhal, ssing134@asu.edu, (+1 480-616-5125)

1.1. ***Purpose***

The purpose of this document is to create and highlight the team's project management plan, in coordination with the project sponsors and faculty advisor; to elicit, analyze, design, implement, test and deliver the proposed system. The reader should expect all the processes that should be covered and agreed upon, in managing the proposed system.

1.2. ***Scope***

The scope of this document is to share the team's project management plan, specifically, Project Overview (Summary, Deliverables), Process Model, Organization Structure, Project Management and Control Plan, Technical Process involved, Activity and Scheduling of the tasks. This document will NOT cover any design or requirement specification in detail.

1.3. ***Definitions, Acronyms and Abbreviations***

Baseline: A baseline is a work product that has been formally reviewed and accepted by the involved parties. A baseline is changed only through formal configuration management procedures.

Milestone: A scheduled event used to measure progress.

Project Deliverable: A work product that is delivered to the project sponsor. Task:

The smallest unit of work subject to management accountability.

1.4. ***References***

1. Guide to Preparing the Software Management Plan, © *R. Buckley*, Department of Computer Science - College of Engineering and Computer Science, California State University, Sacramento Version 11.10.2014

1.5. ***Overview of Contents of Document***

- Project Overview - This section contains a brief description of the project, the deliverables and the process to be used in managing the project. In addition, an explanation is provided as to how the team intends to manage the project.
- Project Organization - The section includes an explanation of the phases of work that will be scheduled, monitored and managed throughout the project's development life cycle. Also included is a description of the team's planned organizational structure. Individual team member assignments and responsibilities will be also described.
- Project Management Plan and control – This section would contain all the management phases during the course of the project.
- Technical Process – This section describes how documents will be collaboratively modified and the version control process that will be used
- Activities and Schedule - This section contains a description of the activities and tasks to be performed in each of the development phases, the resources required to accomplish the work, an estimated (and hypothetical) budget, and the baseline schedule for the project.

2. PROJECT OVERVIEW

2.1. ***Project Summary***

The purpose of this project is to enhance the existing Android and iOS Applications for the Institute of Human Origins Department at Arizona State University and to develop a desktop-based platform for the user in order to modify the content in the those applications.

Software Development Lifecycle Phases	Phase Deliverable
Establish the vision and scope of the project	Project Charter
Develop and define the project management plan	Project Management Plan
Elicit, analyze, specify, validate and publish the requirement specifications	Software Requirements Specification
Design the software	A) Software Design Specification B) Desktop Application Prototype
Implement the software design specifications	Desktop Application, Enhancements in iOS and Android Applications
Develop and define system test plan	System Test Plan and Test Cases
Perform system testing	Software Test Report
Perform Integration Testing	Software Test Report
Preparing materials to be delivered to the sponsor	A) User manual B) Desktop Application C) iOS Application D) Android Application

2.2. ***Project Deliverables***

1. Project Charter
2. Project Management Plan
3. Software Requirement Specification
4. Software Design Specification
5. Project Prototype
6. Android Application
7. iOS Application
8. Desktop Application
9. User Manual
10. Software Test Report

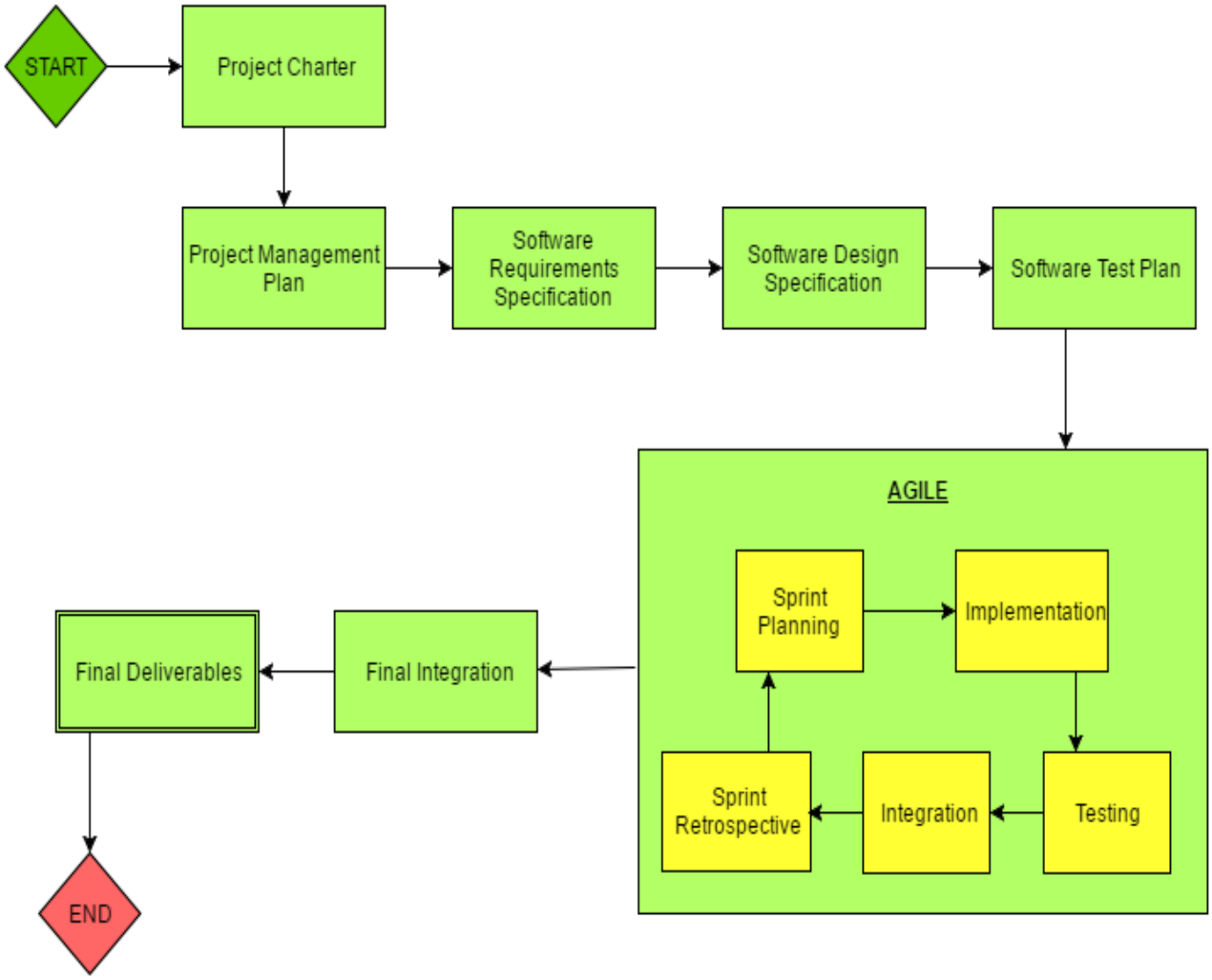
2.3. ***The Management Plan and the Planning Process***

Project Phase	Phase Deliverable	Start Date	End Date
Establish the vision and scope of the project	Project Charter	November 1, 2016	November 9, 2016
Develop and define the project management plan	Project Management Plan	November 1, 2016	November 9, 2016
Elicit, analyze, specify, validate and publish the requirement specifications	Software Requirements Specification	November 7, 2016	November 16, 2016
Design the software	A) Software Design Specification B) Desktop Application Prototype	A) November 9, 2016 B) December 1, 2016	A) November 16, 2016 B) January 9, 2017
Implement the software design specifications	A) Desktop Application B) Enhancements in iOS and Android Applications	January 9, 2017	March 15, 2017
Develop and define system test plan	System Test Plan and Test Cases	December 1, 2016	January 9, 2017
Perform system testing	Software Test Report	January 9, 2017	March 15, 2017
Perform Integration Testing	Software Test Report	March 15, 2017	April 1, 2017
Preparing materials to be delivered to the sponsor	A) User manual B) Desktop Application C) iOS Application D) Android Application	April 1, 2017	April 8, 2017

3. PROJECT ORGANIZATION

3.1. Process Model

We would be following AGILE Software Development Process after the initial Software Requirements Elicitation, Analysis and Design phase. The actual development process will consists of bi-weekly sprints, consisting of sprint planning, implementation, testing, integration and sprint retrospective.



3.2. ***Organizational Structure and Interfaces***

Team hackSlash
Faculty-Advisor: Dr. Tim Lindquist

Roles	Responsibilities
Project Manager: **Sweta Singhal**	• Leading and managing the team from upfront (single point of contact from team's end) • Preparing agenda for the team meetings with sponsors and faculty- advisor, scheduling team meetings and sending out meeting minutes • Driving daily stand ups, sprint planning and sprint retrospective meetings. • Highlighting team concerns/problems to the faculty advisor or sponsor. • Documentation and Reporting • iOS Developer
Software Developer: **Arpit Jaiswal**	• iOS Developer • Incorporating enhancements in iOS Application • Migrating Objective C to Swift • Testing and Integration from iOS perspective
Software Developer: **Mihir Bhatt**	• Android Developer • Incorporating enhancements in Android Application • Upgrading application to latest Android version • Testing and Integration from Android perspective
Software Developer: **Gowtham Nayak**	• Java Swing Developer • Designing and developing Java Swing Application • Testing and Integration from Java Swing perspective
Software Developer: **Senthamil Sindhu**	• Java Swing Developer • Designing and developing Java Swing Application • Testing and Integration from Java Swing perspective
Faculty-Advisor: **Dr. Tim Lindquist**	• Advising for technical concerns while developing the system • Advising for optimization, performance and security issues • Infrastructural Support

3.3. Project Responsibilities

Software Development Lifecycle Phases	Phase Deliverable	Team Members Responsible
Establish the vision and scope of the project	Project Charter	Arpit, Gowtham Management: Sweta
Develop and define the project management plan	Project Management Plan	Mihir, Senthamil Sindhu, Sweta Management: Sweta
Elicit, analyze, specify, validate and publish the requirement specifications	Software Requirements Specification	Arpit, Gowtham, Sweta Management: Sweta
Design the software	A) Software Design Specification B) Desktop Application Prototype	Mihir, Senthamil Sindhu Management: Sweta
Implement the software design specifications	Desktop Application, Enhancements in iOS and Android Applications	iOS : Arpit, Sweta Android : Mihir Java Swing: Gowtham, Senthamil Sindhu Sprint Planning/Monitoring: Sweta
Develop and define system test plan	System Test Plan and Test Cases	iOS: Arpit, Sweta Android: Mihir Java Swing: Gowtham, Senthamil Sindhu Sprint Planning/Monitoring: Sweta
Perform system testing	Software Test Report	iOS: Arpit, Sweta Android: Mihir Java Swing: Gowtham, Sindhu Sprint Planning/Monitoring: Sweta
Perform Integration Testing	Software Test Report	iOS: Arpit, Sweta Android: Mihir Java Swing: Gowtham, Sindhu Sprint Planning/Monitoring: Sweta
Preparing materials to be delivered to the sponsor	A) User manual B) Desktop Application C) iOS Application D) Android Application	User Manual: Mihir, Arpit, Gowtham, Sindhu, Sweta Team release Sign Off and Monitoring: Sweta

4. PROJECT MANAGEMENT AND CONTROL

Validation: After Requirements Elicitation phase, team would be analyzing whether the requirements are feasible. Depending upon the analysis, team would be meeting the sponsors to set up right expectations and would then prepare Software Requirement Specification Documents. Team would get approvals and signoffs from the Sponsors to validate the requirements.

Process:

We would be following Agile Methodology for Software Development Process.

A Product Backlog would be formed from SRS, soon after the requirements elicitation phase. There would be bi-weekly sprints over the course of 5 months. Each sprint would kick-off with the Sprint Planning wherein the Project Manager and Sponsors, along with Developers, would move the tasks from the Product Backlog into Sprint Backlog in the form User Stories and would assign Story Points to each user story along with **Acceptance Criteria**. Each sprint would consist of Daily-Standups, Weekly-Standups, Implementation, Testing and Integration. We would be using Taiga Web-based Tool for monitoring and measuring the progress from the Sprint Burn-down Chart.

Verification: After the completion of each sprint, A Sprint Demo would be carried out to verify that the product designed is in lines with the requirement specifications Sprint Retrospective would be carried out to check on what went wrong, what went right and what can be improved questions.

Delivery: Team would target towards thorough Integration Testing and System Testing in the last 2 Sprints. Based on Test Results, in case there are no major bugs, team would be targeting for the soft release of the product on April 8th, 2017. Else, Team would be fixing the bugs and would release the product by April 30th, 2017.

Installation: Team would be releasing the Mobile Applications on the Google Play Stores and Apple Stores. For Java Swing Desktop Application, team would be releasing an executable file which can be run on the desktop for its installation.

4.1 *Project Management Objectives and Priorities*

Team's Goal: To provide enhancements in the existing mobile applications (Android & iOS) and deliver the working desktop-based platform, which allows the customer to modify the content on those applications, by April 8th 2016, adhering to AGILE Software Development Process and following Project Management Techniques.

Objectives:

- Ensure that Software Requirement Specification and Software Design Specification documents are thoroughly validated by the Sponsors.
- Product Backlog to be monitored every sprint.
- **Prioritizing** user stories based on dependencies, situational feasibility and criticality, decide on feasible sprint backlog in Sprint planning meetings.
- Conduct daily-standups to discuss updates/highlight issues within the team and weekly-standups to discuss/highlight to the faculty advisor.
- Conduct Sprint Retrospectives to keep a check on what went right, what went wrong and what can be improved questions, to improve the upcoming sprints and reduce delays
- Ensure sharing of project status, meeting minutes, retrospective outcomes, issues/concerns across the team, advisor and sponsors; maintaining the same in the **Project Log**, which can be used in the **audit trail.**
- Ensure that the team is not deviated from the project scope, by demoing the system after each sprint to the sponsors, getting feedback and getting the system verified against the requirements.
- Ensure that proper coding standards are followed and that working code is maintained over GIT repository.
- Ensure that proper documentation is done; developing SRS, SDS, Test Plans, Test Reports and User Manuals

4.2 ***Assumptions, Dependencies, and Constraints***

The team develops apps on Android and iOS platform. Also a desktop application will be developed using Java Swing. To develop the project the team needs expertise in Java, Android Application development, Swift, iOS application development, familiarity with client-server architecture. The android application can be run on any device which has API Version 19 and above. Similarly iOS application can by run on iPhones and iPads. The Java Swing application can be run on any device which runs Java JRE7 and above.

Each team member works for 12 hours a week. Therefore the entire team will spend a total of 60 hours per week on this project. The team meets with the sponsor every Monday from 1 PM - 2 PM. Also the team will report to Irfan every Wednesday.

The application is developed on top of an existing application. The current application is ported to newer version of APIs and programming language and new features are added. Hence we would be requiring the documentation of the existing application.

We will be working in agile fashion delivering updates for the software. Each update can be a new functionality or can be a better way of implementing the existing functionality.

4.3. ***Risk Management***

The only major immediate risk we foresee as of now is the hosting of a server which is responsible to receive the modified content, sent from Java Swing Application, to store the updated application content, and to serve the content to the application upon request. This risk has a major impact on the project, as entire mobile application content is dependent on the server. If the server is not available, application would show stale data, which might mislead the application users.

Apart from the above one, all the risks would be identified as we move ahead in the implementation process. In each sprint planning meeting, we would be discussing the risks that we foresee in the next upcoming sprint and the solutions to mitigate them.

4.4. ***Change Management***

As we are following AGILE Software Development Methodology, it would allow for changes in the requirements to be easily incorporated in the system. At the end of each sprint, we would be demoing the system to the sponsors to get their feedback on the same. In case of any changes in the requirements or issues in the system, we would document it, create/amend the task on Taiga and take up the task in the next sprints.

4.5. ***Schedule Control***

The team intends to use Taiga to create tasks, schedule bi-weekly sprints and to monitor progress against the baseline schedule. After completion of each sprint, we would be conducting sprint retrospective to discuss on the Sprint Burn-down Charts and to check the progress against the actual backlog. We would also demo the application to the sponsors to stay in line with the project scope and schedule. We would be monitoring the schedule bi-weekly by conducting Sprint Planning Meetings.

NOTE. The baseline schedule is the initial estimate (guess) at how the major phases of work will be accomplished over the life of the project. Changes occur as the team modifies the work schedule to be consistent with the expected progress.

4.6. ***Issue Resolution***

As we are following AGILE Software Development Methodology, it would allow for testing the system against the requirement, bi-weekly. At the end of each sprint, we would be integrating the modules and test them against the user story's acceptance criteria. Also, we would be demoing the system to the sponsors to get their feedback on the same. In case of any issues in the system, we would document it over the Issue Tracker in Github, assign priorities and issue level (low, medium, high, critical), create/amend the task on Taiga and take up the task in the next sprints.

5. TECHNICAL PROCESS

5.1 ***Methods, Tools, and Techniques***

Application	Tools	Technology used
Desktop Application	Eclipse IDE	Java Swing
iOS Application	XCode	Swift
Android Application	Android Studio	Java

5.2 ***Software Documentation***

Phase	Documents delivered
Requirements Gathering and Analysis	Software Requirements Document
Design	A) Software Design Document B) System Test Report
Implementation or coding	Software Development & Integration Report
Testing	Test Analysis Report
Deployment	A) Final Report B) User manual

To ensure quality assurance, a demo is conducted at the end of every sprint to test the working of the system against the requirements. The test cases are designed to ensure that the system is built based on the design decisions and the specified requirements. The product is then reviewed by the sponsor to ensure accurate working.

5.3 ***Documents***

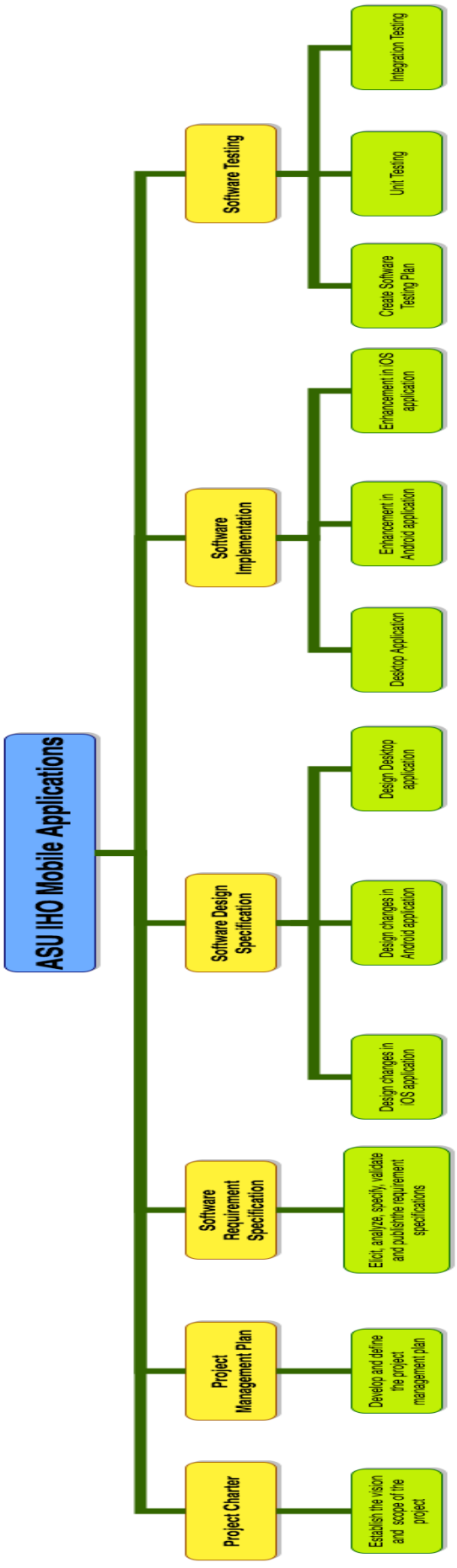
Documentation	Description
Project Charter	Includes statement of objectives for the project
Project Management Plan	Includes timeline and activities for each deliverable
Software Requirements Specification	States the functional and non-functional requirements for the system being developed
Software Design Document	Illustrates the architecture of the system being developed
Milestone Report	Provides a report of the work done during each phase
Software Test Report	Illustrates the test cases to be validated against the given input
User Manual	Assists users in using the system delivered
Final Report	Includes the description of the entire work done throughout the course of the project

Team member	Responsibility
Sweta Singhal	Sprint Planning and monitoring, iOS Development
Arpit Jaiswal	iOS Development
Mihir Bhatt	Android Development
Gowtham Nayak	Desktop Application Development
Senthamil Sindhu	Desktop Application Development

6. ACTIVITIES AND SCHEDULE

This section contains a description of the activities and tasks to be performed in each of the development phases, the resources required to accomplish the work, an estimated (and hypothetical) budget, and the baseline schedule for the project.

6.1 *Activities and Tasks (Work Breakdown Structure)*



6.2 Baseline – Schedule

Project Phase	Phase Deliverable	Start Date	End Date
Establish the vision and scope of the project	Project Charter	November 1, 2016	November 9, 2016
Develop and define the project management plan	Project Management Plan	November 1, 2016	November 9, 2016
Elicit, analyze, specify, validate and publish the requirement specifications	Software Requirements Specification	November 7, 2016	November 16, 2016
Design the software	C) Software Design Specification D) Desktop Application Prototype	C) November 9, 2016 D) December 1, 2016	C) November 16, 2016 D) January 9, 2017
Implement the software design specifications	C) Desktop Application D) Enhancements in iOS and Android Applications	January 9, 2017	March 15, 2017
Develop and define system test plan	System Test Plan and Test Cases	December 1, 2016	January 9, 2017
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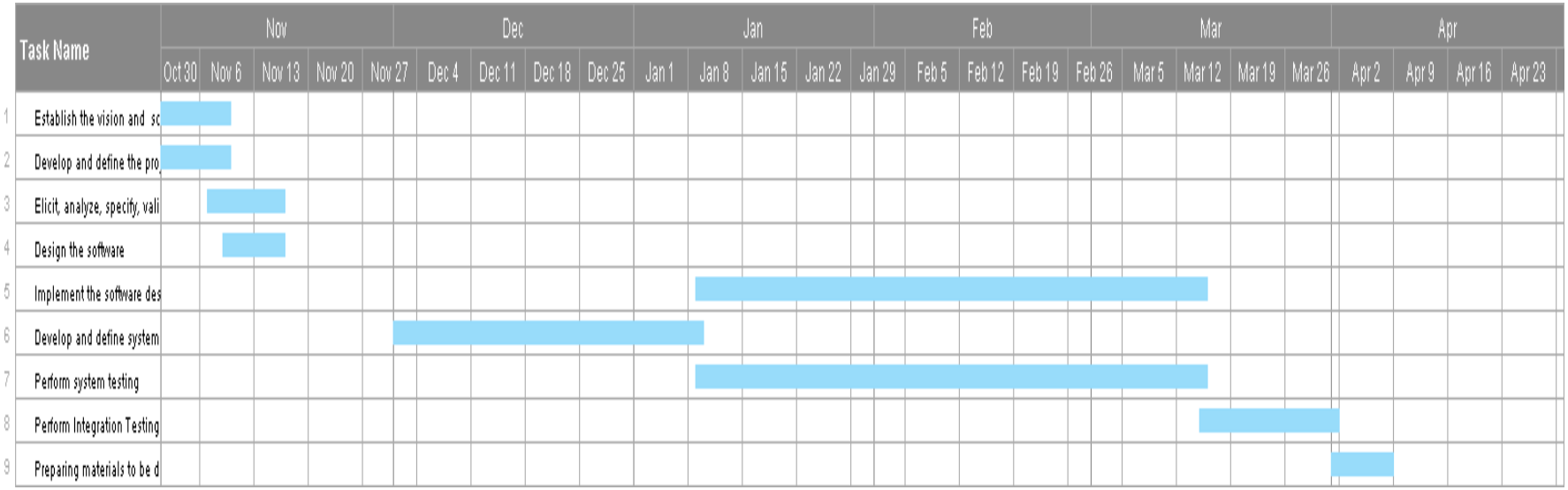
Perform Integration Testing	Software Test Report	March 15, 2017	April 1, 2017
Preparing materials to be delivered to the sponsor	E) User manual F) Desktop Application G) iOS Application H) Android Application	April 1, 2017	April 8, 2017


Task Name
Nov
Dec
Jan
Feb
Mar
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Oct 30
Nov 6
Nov 13
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Nov 27
Dec 4
Dec 11
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Jan 1
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1 Establish the vision and sc
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4 Design the software
5 Implement the software des
6 Develop and define system
7 Perform system testing
8 Perform Integration Testing
9 Preparing materials to be d

Gantt Chart

6.4 ***Resource Requirements***

The estimate of the project is roughly about 1200 man hours, which includes conceptualization of the idea, development of the product, testing of the product and support for few days after deliverable.

Time Estimate:

Number of Team members : 5.
Hours for each team member : 12hrs/week.
Number of weeks required : 20 weeks.

Support Resources:

1. Macbook (development) : 4
2. UNIX server(database and backend processing) : 1
3. Iphone and Ipad (Test iOS application) : 1
4. Android Phones (Test Android Application) : 1

7. Document approval page

Document	Approval		
	Development Team	**Faculty Advisors**	**Course Coordinator**
Project Charter			

Project Management Plan			
Software Requirements Specification			
Software Design Document			
Milestone Report			

Software Test Report			
User Manual			
Final Report			