

Design Document

Team: WISE

Project: SLHS-VID

Date:18th February, 2015

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# 2 Revision History

|  |  |  |
| --- | --- | --- |
| **Date** | **Author** | **Revisions Made** |
| 2/18/2015 | Devika Pradhan, Mika Wu, Zhang Tao Yue, Hang Yang | Initial Documentation for Mid-Semester Design Review. |

# 3 Design Status Summary

|  |  |
| --- | --- |
| **Phase 6: Service / Maintenance** | **Status:** |
| ***Gate 6: Project Partner and Advisor approve continued fielding of project. If not, retire or redesign.*** | |
| Date of Advisor approval: |  |
|  |  |
| **Phase 5: Delivery** | **Status:** |
| ***Gate 5: Continue if Project Partner, Advisor and EPICS Admin agree that project is ready for delivery!*** | |
| Date of Advisor approval: |  |
|  |  |
| **Phase 4: Detailed Design** | **Status:** |
| ***Gate 4: Continue if can demonstrate feasibility of solution (is there a working prototype?). Project Partner and advisor approval required.*** | |
| Date of Advisor approval: |  |
|  |  |
| **Phase 3: Conceptual Design** | **Status:** |
| ***Gate 3: Continue if project partner and advisor agree that solution space has been appropriately explored and the best solution has been chosen.*** | |
| Date of Advisor approval: |  |
|  |  |
| **Phase 2: Specification Development** | **Status:** |
| ***Gate 2: Continue if project partner and advisor agree that you have identified the “right” need, specification document is completed and no existing commercial products meet design specifications.*** | |
| Date of Advisor approval: |  |
|  |  |
| **Phase 1: Project Identification** | **Status:** |
| ***Gate 1: Continue if have identified appropriate EPICS project that meets a compelling need for the project partner.*** | |
| Date of Advisor approval: |  |

# 4 Project Charter

## 4.1 Description of the Community Partner

This section should address such questions as:

* Who is the project partner for this project?
* What is the overall mission of the project partner?
* Who will benefit from the project?
* Who will receive the project outcomes/deliverables?

## 4.2 Stakeholders

This section should address such questions as:

* Who will be affected by your project other than your customer?
* Who has vital interest in the project’s success?

## 4.3 Project Objectives

This section should address such questions as:

* Why are you doing the project (i.e. what is the motivation or need for the project?)
* How does your project fit within the mission of the project partner and your team?

## 4.4 Outcomes/Deliverables

This section should address such questions as:

* What are going to be the project results?
* When the project is finished, what will be left behind by your team?

## 4.5 Overall Project Timeline

This section should address such questions as:

* What is the timeline for completion of the project?
* What are the major milestones?
* When is the project intended to be completed?

# 5 Overall Project Design

## 5.1 Phase Six

|  |  |  |
| --- | --- | --- |
| **Phase 6: Service / Maintenance** | **Status:** | **Evidence can be found:** |
| * Evaluate performance of fielded project |  |  |
| * Determine what resources are necessary to support and maintain the project |  |  |
| ***Gate 6: Project Partner and Advisor approve continued fielding of project. If not, retire or redesign.*** | Decision: | Rationale summary: |
| Advisor approval: | Yes / No | Date: |

## Narrative of Service/Maintenance phase of design….5.2 Phase Five

|  |  |  |
| --- | --- | --- |
| **Phase 5: Delivery** | **Status:** | **Evidence can be found:** |
| Goal is to refine detailed design so as to produce a product that is ready to be delivered! In addition, the goal is to develop user manuals and training materials. | | |
| * Complete deliverable version of project including Bill of Materials |  |  |
| * Complete usability and reliability testing |  |  |
| * Complete user manuals/training material |  |  |
| * Complete delivery review |  |  |
| * Project Partner, Advisor, and EPICS Admin Approval |  |  |
| ***Gate 5: Continue if Project Partner, Advisor and EPICS Admin agree that project is ready for delivery!*** | Decision: | Rationale summary: |
| Advisor approval: | Yes / No | Date: |

## Narrative of Delivery phase of design….5.3 Phase Four

|  |  |  |
| --- | --- | --- |
| **Phase 4: Detailed Design** | **Status:** | **Evidence can be found:** |
| Goal is to design working prototype which meets functional specifications. | | |
| * Bottom-Up Development of component designs |  |  |
| * Develop Design Specification for components |  |  |
| * Design/analysis/evaluation of project, sub-modules and/or components (freeze interfaces) |  |  |
| * Design for Failure Mode Analysis (DFMEA) |  |  |
| * Prototyping of project, sub-modules and/or components |  |  |
| * Field test prototype/usability testing |  |  |
| ***Gate 4: Continue if can demonstrate feasibility of solution (is there a working prototype?). Project Partner and advisor approval required.*** | Decision: | Rationale summary: |
| Advisor approval: | Yes / No | Date: |

## Narrative of Detailed Design phase of design….5.4 Phase Three

|  |  |  |
| --- | --- | --- |
| **Phase 3: Conceptual Design** | **Status:** | **Evidence can be found:** |
| Goal is to expand the design space to include as many solutions as possible. Evaluate different approaches and selecting “best” one to move forward. Exploring “how”. | | |
| * Complete functional decomposition |  |  |
| * Brainstorm several possible solutions |  |  |
| * Prior Artifacts Research |  |  |
| * Create prototypes of multiple concepts, get feedback from users, refine specifications |  |  |
| * Evaluate feasibility of potential solutions (proof-of-concept prototypes) |  |  |
| * Choose "best" solution |  |  |
| ***Gate 3: Continue if project partner and advisor agree that solution space has been appropriately explored and the best solution has been chosen.*** | Decision: | Rationale summary: |
| Advisor approval: | Yes / No | Date: |

## Narrative of Conceptual Design phase of design….5.5 Phase Two

|  |  |  |
| --- | --- | --- |
| **Phase 2: Specification Development** | **Status:** | **Evidence can be found:** |
| Goal is to understand “what” is needed by understanding the context, stakeholders, requirements of the project, and why current solutions don’t meet need, and to develop measurable criteria in which design concepts can be evaluated. | | |
| * Understand and describe context (current situation and environment) |  |  |
| * Create stakeholder profiles |  |  |
| * Create mock-ups and simple prototypes: quick, low-cost, multiple cycles incorporating feedback |  |  |
| * Develop a task analysis and define how users will interact with project (user scenarios) |  |  |
| * Identify other solutions to similar needs and identify benchmark products (prior art) |  |  |
| * Define customer requirements in more detail; get project partner approval |  |  |
| * Develop specifications document |  |  |
| * Establish evaluation criteria |  |  |
| ***Gate 2: Continue if project partner and advisor agree that you have identified the “right” need, specification document is completed and no existing commercial products meet design specifications. [This includes their agreeing that you have captured and documented the critical requirements and specifications for this project]*** | Decision: | Rationale summary: |
| Advisor approval: | Yes / No | Date: |

## Narrative of Specification Development phase of design….5.6 Phase One

|  |  |  |
| --- | --- | --- |
| **Phase 1: Project Identification** | **Status:** | **Evidence can be found:** |
| Goal is to identify a specific, compelling need to be addressed | | |
| * Conduct needs assessment (if need not already defined) |  |  |
| * Identify stakeholders (customer, users, person maintaining project, etc.) |  |  |
| * Understand the Social Context |  |  |
| * Define basic stakeholder requirements (objectives or goals of projects and constraints) |  |  |
| * Determine time constraints of the project |  |  |
| ***Gate 1: Continue if have identified appropriate EPICS project that meets a compelling need for the project partner [This includes a Project Charter]*** | Decision: | Rationale summary: |
| Advisor approval: | Yes / No | Date: |

# Narrative of Project Identification phase of design….6 Semester Documentation (current semester)

## 6.1 Team Member

Devika Pradhan: Team Leader for SLHS-VID. A freshman engineer with the intended major of Computer Engineering. An experienced programmer, Devika or Dee loves coding and is open to learning new languages. For this semester, her job is to monitor the team’s progress and make significant changes on the existing model made by the previous semester.

Mika Wu: Main programmer for the team. He is an experienced programmer and has contributed greatly to the coding and testing the code for video.js library for the first design review. He is the senior most member on the team and is a great team builder.

Zhang Tao Yue: A Freshman Engineer with his mind set on Mechanical Engineering, Zhang makes sure that we have our PIGS presentation in place every week and highlight’s the goals for each team meeting. He is also the buffer person between the team and our Project Partners. Throughout the semester, he will develop programming skills and will contribute greatly into the hard coding of the project.

Hang Yang: is the team coordinator and is soon going to be working on the hard coding module. He intends to pursue Electrical Engineering. A quiet guy, he is a lot more productive, efficient and hardworking when it comes to working on this project. Hang is responsible in doing most of our PIGS presentation and work with Zhang on communicating frequently with the project partners.

## 6.2 Current Status and Location on Overall Project Timeline

This project is a semester old (Fall 2014) and currently comprises of a team entirely of new members (none of the past members have stayed with the team). Currently, the past team had sample YouTube videos uploaded on their site that they fixed with time stamps and sample grading rubric that recorded responses, but did not store those responses. The video stops as the test is being administered.

The current state of the project is almost the same as the previous semester with additional inputs from our side. We have got hold of modules form the SLHS Department and Mika has been working on the video.js library in order to get the time stamps. He is working on getting the stamps to be flexible. As we are in Week 6, we have made progress on our individual agendas and team goals. All the team members are working on developing programming skills and applying it on the website. According to our Gantt Schedule, we are on track.

Our Goal for Week 6-7:

1. Revise the project code.
2. Implement code for backend functionality.
3. Work on design review and finish up coding.

These were our objectives that are either work in progress that would finish up by this week or are already done.

## 6.3 Goals for the Semester

We intend to make substantial contribution to this project (more than what the previous semester team did). We intend to work on actual videos from the SLHS Department, that is, videos of test administration. We want to make the constrains (age, measure of a level of disability, past experience in taking the tests, number of past attempts, etc) for determining the test level to be a lot more clear so that our tests can match the subject’s level of understanding. This is also accompanied by flexible time stamps that ensure the video moves back and forth freely. We also want to design it to make it user friendly.

## 6.4 Semester Timeline

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week | SLHS-VID Gantt Schedule Objective | Objective Description | Semester Milestone | Responsibilities and Resources for both Milestones and Team Objectives. |
| 1-3 | Project Orientation; Code Comprehension; Plan/Budget  Meet up with the project partner to determine semester needs; meet the past team members  Design work; getting all the members to start learn coding individually. | Get up to speed with what the past semester has done for this project; Based on the past team’s code in JavaScript, we had a vague idea of what they had been working on.  Meet up with the project partner so that we have a better picture of what this project is about.  Register everyone on codecademy and train them on the fundamentals of JavaScript. | Learning the work ethics involved with EPICS and what are the expectations to be met for this semester.  Get in touch with our project partner; prepare the Gantt Schedule for the entire semester.  Finish up the Individual evaluation rubric as required for mandatory new students. | Getting to know the team members and laying down the team structure.  Visit project partner; begin planning and documenting.  Attend lectures that will help us in our design review, meet all the week 1-3 objectives and catalogue results. |
| 4 | Design Work; research good form submission | Narrow down on our project partner’s needs and make realistic semester objectives that are tailored around their needs. The online rubric needs studying | Approval of appropriate plan for the semester situated in overall timeline; Semester Plan and Budget included in Project Management portion of document | Meet and brainstorm ideas and on that basis determine the semester plan and budget. |
| 5 | Revise past project code; one mid- semester objective. | Decide on one objective to be met before the first design review. Use the libraries that the past team used to get standard coding from online templates and built in functions. | Keep PP in loop and make individual documentation. | Brainstorm ideas and prioritize the PP’s urgent need. |
| 6 | Revise the past code if needed and implement the code for backend functionality; Finish and submit the design documentation and formally invite our project partner for the design review. | Work around with standard JS libraries and experiment with the sample video that the SLHS has given us. Finish the design documentation and prep up for the design review. | Get all the materials ready and have something concrete ready that is to be presented before the PP. | Every member contributes to the design documentation and submit it on time. |
| 7 | DESIGN REVIEW | Give a brief overview of what our semester objectives are and give the review committee a sample run of what we have been working on. | Design Review Presentation | All members will have an equal opportunity in the presentation. |
| 8 | Reflect back on the suggestions made by our PP and decide what needs to change from our original plan of action. | Do a SWAP Analysis. Also, have a candid team chat so that we can give each other feed backs. | Mid-semester evaluation of both individual and project for grading. | Peer evaluation, Indiv and Proj Evaluation Rubrics. |
| 9-12 | Revise project code and tweak around with the code. Set up a second objective for the semester. | By now all the members should be fairly proficient in coding. We aim to split up work and try our hands in designing the page to make it more attractive. | Complete Team Culture Survey and share informal feedback to people is asked by the advisor. | Depending on individual strengths, split tasks and set objectives to be met by semester end. |
| 13 | Work on hard coding and advance knowledge base with skill sessions | Prepare for the final design review and fast track our project so that we meet our deadlines. | Practice Design Review Presentation and get feedback. Update design documentation. | All members just like the way they contributed in week 6 will contribute once more to add on to the existing document. |
| 14 | FINAL DESIGN REVIEW | Give the Review Committee and our project partner our finished product and give them a demo. | Design Review Presentation | Each member will have something different to contribute to the presentation that was different from last time. |
| 15 | Transition week | Archive the semester work in a proper format. Make the transition document as self-explanatory as possible. | Final evaluation of individual and project documentation. | All members need to catalogue all forms of evidence: notebook, recordings, coding or communications effectively and systematically. |

## 6.5 Semester Budget

We have no team budget since as of now it is not required.

## 6.6 Transition Report

### 6.6.1 Summary of Semester Progress / Comparison of Actual Semester Timeline to Proposed Semester Timeline

Compare actual semester timeline to proposed semester timeline (if different). What aspects varied the most from proposed to actual?

Discuss the progress made during the current semester, including any pitfalls that you encountered that would be helpful for future teams to avoid as well as any best practices you found that helped you to advance the status of the project or work well as a team.

### 6.6.2 Draft Timeline for (next semester) and Relationship to Overall Project Timeline

Based on the work completed this semester, the work left to be completed, and the overall project timeline, create a draft timeline for the following semester.

# 7 Past Semester Archive

## 7.1 Past Semester 1

Retitle this heading to reflect the appropriate semester (e.g. Spring 2011)

### 7.1.1 Past Team Members

List team members from the appropriate semester including their roles and their contact information.

### 7.1.2 Past Timeline

Paste in previous semester timelines to indicate what was accomplished during this semester.

## 7.2 Past Semester 2

Retitle this heading to reflect the appropriate semester (e.g. Fall 2010)

### 7.2.1 Past team Members

List team members from the appropriate semester including their roles and their contact information.

### 7.2.2 Past Timeline

Paste in previous semester timelines to indicate what was accomplished during this semester.