**Project Management Plan of CHIS**

# Project Summary

* 1. **Project Overview**Canvas HUD Interface System (CHIS) is intended to help in getting rid of OpenGL 1.x code used in drawing the HUD system in an aircraft, replacing it by high level API calls.
  2. **Project Scope**As described in the SRS, the project’s scope is primarily managing the rendering of the HUD of the aircrafts, including data on location, altitude, computations such as heading and spatial orientation based on the data.  
     The project simultaneously abstracts OpenGL away from the developer allowing further extensions to be independent of OpenGL version.
  3. **Development Process**We follow the iterative model of software development. The feature will be developed in following two iterations.
     1. **First Iteration**The core modules will be developed in this iteration which would include the following modules:

|  |  |
| --- | --- |
| **Module** | **Purpose** |
| Data Access Layer | Manage the aircraft, scenery, and liveries |
| Nasal | Handle data such as active engines, temperatures, altitudes, and so on. |
| Canvas | Handle drawing calls by routing through OpenGL pipeline |

* + 1. **Second Iteration**This iteration would complete the feature in its full functionality. The following enhancements will be done in this iteration:

|  |  |
| --- | --- |
| **Module** | **Purpose** |
| Positioning System | Position the HUD appropriately in the cockpit |
| Flight Plan | Display the parameters obtained from Nasal |
| HUD API | Maintain well documented API for easy extension and feature development |

* 1. **Effort, Schedule and Team**The following 2 persons are involved in the team:  
     a. Kshitij Tiwari  
     b. Keshav Bharat  
       
     Schedule of the iterations is detailed below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Iteration#** | **Start Date**  **(dd/mm/yyyy)** | **End Date**  **(dd/mm/yyyy)** | **Total Effort**  **(Person Hours)** |
| Iteration 1 | 26/09/2018 | 14/10/2018 | 54 |
| Iteration 2 | 15/10/2018 | 01/11/2018 | 45 |

**Total Effort in man hours: 99  
Final Delivery Date: 02/11/2018**

1. **Detailed Effort and Schedule**We use the bottom up approach for estimation. In this we list the major modules and tasks and then estimate their effort and schedule. Task assignment to project members is also specified.
   1. **First Iteration**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Task** | **Estd. Effort** | **Start Date** | **End Date** | **Person** | **Actual Effort** |
| 1 | Setup the data | 6 | 26/09/2018 | 26/09/2018 | Kshitij |  |
| 2 | Create Link to Data | 8 | 27/09/18 | 27/09/18 | Keshav |  |
| 3 | Render HUD border | 18 | 28/09/18 | 05/10/2018 | Kshitij |  |
| 4 | Render inner scale | 18 | 06/10/2018 | 12/10/2018 | Keshav |  |
| 5 | Collect aircraft data | 4 | 13/10/2018 | 14/10/2018 | Kshitij |  |

* 1. **Second Iteration**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Task** | **Estd. Effort** | **Start Date** | **End Date** | **Person** | **Actual Effort** |
| 1 | Update System | 8 | 15/10/2018 | 20/10/2018 | Kshitij |  |
| 2 | Runtime Synchronization | 8 | 21/20/18 | 23/10/18 | Keshav |  |
| 3 | Generalization | 15 | 23/10/18 | 27/10/2018 | Kshitij |  |
| 4 | System Testing | 9 | 29/10/2018 | 30/10/2018 | Keshav |  |
| 5 | Documentation | 5 | 31/10/2018 | 31/10/2018 | Kshitij |  |

1. **Team Organization**We will have a small team; hence we use a flat team structure of peers, with one person having an additional role of project manager. Following table gives the organization:

|  |  |
| --- | --- |
| **Name** | **Role** |
| Kshitij Tiwari | Developer, Project Leader |
| Keshav Bharat | Developer |

1. **Quality Plan**The quality control process for this project will consist of the following:   
   • *SRS and Architecture Review:* The SRS and Architecture of CHIS will be reviewed by a team including people from outside.   
   *• Design Review:* Design document will be reviewed by the project team.   
   *• Unit Testing:* Each programmer is responsible for Unit Testing his module. The modules will be tested with unit test. For some modules, unit testing report will be produced.   
   *• System Testing:* Will be done according to the system test plan, which will describe the testing strategy as well as list all the test cases. The test plan will be reviewed.
2. **Risk Management Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Risk** | **Probability** | **Impact** | **Mitigation Plan** |
| 1 | Abstraction for one aircraft may not generalize well | High | Very High | Build prototype for one aircraft and ensure that it has general |
| 2 | Not completing the project within schedule | High | High | Break project into 2 iterations.  Use Vacation time as slack time. |
| 3 | Orientation and location may be incorrect | Medium | Medium | Keep original OpenGL code for reference while implementing the abstraction. |

1. **Project Tracking**As it is a small project, elaborate tracking is not necessary. Following is project tracking plan:   
   • We will primarily track the schedule and tasks. This will be done through weekly meetings and weekly status reports (to be sent by email.)   
   • Status of the tasks achieved and missed will be reported weekly.   
   • Effort tracking will be done informally, and if necessary re-estimation will be done.   
   • Risks will be revisited monthly in the review meeting.