

# **Project Plan**

## **IPRO 329 – Health Physics Computer Training Simulation**

### **Team members:**

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### **Advisors:**

Laura Batson  
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## 1.0 Objectives/Abstract

- Design a new training simulation scenario that expands and builds upon previous semester's flash based program.
  - Create the simulation's graphics into a 3D more real life model.
  - Integrate the navigation systems into the new scenario.
  - Create the game scenario to make the game more plausible.
  - Update the in-game tools to current tools used in industry.
  - Provide question/answer entries to the game's database.
  - Perform usability testing and improve with feedback.
- Put together a final product including a final packaged game.

## 2.0 Background

- A. Include information about the customer/sponsor involved.
  - This project is aimed at satisfying the needs of those groups who oversee the training of Radiological Control Technicians. Examples include the training managers at facilities such as Argonne National Labs, Fermi Lab, etc. Also, the U.S. Department of Energy produces and distributes training material, which our product could be a part of. Our content advisor, Professor Laurence Friedman, has first hand experience with the training programs.
- B. Provide information about the user problem(s) the project is facing.
  - Currently, to become certified as a Radiological Control Technician (RCT), an individual must pass a comprehensive exam, which includes an oral exam. A scenario is relayed and the RCT must solve the problem and verbally explain his decisions. The only way to practice for this oral exam is to assemble a group of supervisors and administer a mock oral exam. Our simulation is meant to replace that mock exam.
- C. Present information about the technology or science involved or potentially involved in addressing the problem(s).
  - The simulation is programmed in Flash, which is a popular language for interactive programs. Also, it deals with many components of health physics, such as radioactive materials and their properties, and the equipment used by RCT's.
- D. Offer information on the historical success or failure of previous attempts in addressing the problem(s).
  - There are no significant programs available to assist potential RCT's with their training, aside from the mock oral exams. This lack of materials is the reason for our project. The scenario completed in Spring 2008 received overwhelming positive feedback from various usability testers.
- E. Include any ethical, moral, cultural or scientific issues that may be involved to investigate the problem(s).

- The simulation must be as true as possible, if it will be utilized to train RCT's for their certification exam. Also, the simulation cannot place any unnecessary strain on the user, which didn't surface as a problem during our usability testing.
- F. Provide information about the business or societal costs of the problem(s).
- National laboratories such as Argonne have training programs that cost their organizations money. This training simulation would help to cut the costs that might be incurred by holding a full mock oral exam.
- G. Offer details on the proposed implementation outline for any practical solutions developed by the project team.
- The project team plans to have a CD at the end of the semester that includes the game that can be marketed to RCT's being trained. In order to have a finished product at the end of the semester, we plan to order cases and make enough copies of the game to distribute.
- H. Include research about similar solutions or literature search results.
- There are no other similar solutions on the market for those training to be RCT's. The U.S. Department of Energy distributes training material, but there is nothing to help the prospective RCT train through any real life sort of examples.

### 3.0 Methodology/Brainstorm/Work Breakdown Structure

- A. Define the problem(s).
- The problem we are solving this semester is the lack of effective training materials available to help potential RCT's prepare for their certification exam. This is a continuation of our addressed problem from the three previous semesters.
- B. Describe how your team will go about solving the problem(s).
- By planning, creating, and testing a flash game that effectively simulates an RCT oral exam, we will provide potential RCT's with alternates to studying written documents or attempting to organize a mock oral exam. Due to the success seen from last semesters program, we are developing a new scenario to expand and further develop the training tools available for an RCT exam.
- C. Explain how potential solutions will be tested.
- Potential solutions to the issue will be tested through usability testing and utilizing the knowledge and experience of our content advisor.
- D. Describe how results of research and testing will be documented.
- The usability tests are documented, along with written notes being taken of all feedback and comments made by the volunteers. This gathered information is compiled and organized at a later date, and analyzed for all useful comments and suggestions.
- E. Define how analysis of the test results will be conducted.
- Students who have background in focus groups will do analysis of the test results. They will analyze the results to determine the different likeability factors

that are measured in the test. This information will be used to help further develop the game.

- F. Explain how the IPRO deliverable reports will be generated.
  - The Project Management team will be in charge of all IPRO deliverables, and will be concerned with getting them in on time.

Additional Details about each Sub-Team:

#### Development Team:

The development team's goal is to deliver a high quality executable containing a robust, beautiful and operational version of the game. The development team's final delivery will be an executable that can be locally installed and distributed either through download or CD-ROM. The executable version of the game will be of production quality ready to be distributed to end-users. The final version of the game to be delivered will be of professional visual quality and will contain an immersive environment through the visuals and the user interface.

#### Design:

The goal of this years design team is to develop scenes for the new scenario in Blender, an open source 3D modeling program. Using Blender, the new scenes will be designed for realism and accuracy. A second goal of the design team is outputting or contributing to the media related to the game and IPRO, such as the game manual, a tutorial, the IPRO Day poster, and the IPRO day website. The third goal of the design team is to research any new items that need to be added to the game as tools.

#### Project Management:

The project management team's goal is to complete a plausible working scenario for the training simulation game. They will also work on the IPRO deliverables, and coordinate the midterm and final presentation.

## 4.0 Expected Results

- A. Provide details on expected activities of results involved in the project.
  - The result of our project will be a CD simulation that will be usable by potential RCT's in order to help them in preparation for their oral exams.
- B. Describe expected data of results from research or testing involved in the project
  - When testing our product, we expect to receive feedback detailing whether this is a viable solution to our problem. We hope to find that it is, and hope to get positive feedback on the status of our simulation.
- C. Define potential products resulting from research and testing.

- Our RCT training simulation is both a solution to our team's problem, and a product in itself. Hopefully the product will be an effective enough solution to keep a new simulation from being required in the near future.
- D. Define potential outputs to be produced through the execution of the assigned tasks.
- Our work will produce a detailed scenario that can be implemented into the simulation developed by our team. Also, the simulation itself will reflect the needs of the user's, including graphical style and interface design. The project management team will be working to ensure that the scenario is plausible, ensuring that potential customers will be satisfied with the product.
- E. Discuss the expected results in terms of deliverables that will be produced by the project team (i.e. a working prototype).
- Our team's primary goal this semester is to produce a working, polished game.
- F. Discuss whether or not the results you expect address the problem of the sponsor/customer.
- Our content advisor assures us that if our product is developed as it has been described to him, that it will serve its purpose very effectively. Also usability testing in previous semesters has shown that this product is an effective learning device.
- G. Discuss how the expected results will be incorporated into the proposed solution or solution framework.
- With a finished product to present to those who would be interested in expanding the training programs available to potential RCT's, they will be able to see its effectiveness first hand. The solution to the problem, being an effective simulation, will be directly supported by a working game.

## 5.0 Project Budget

This semester we would like to develop the physical packaging for the simulation along with any printed materials that will be included.

### **Kings, Movie-Sized Cases**

**20pack Kings: \$54 USD**

20 Kings, Access to Design Templates 24 Trayliners, Insert Books + Disc Labels

Due to usability testing at Argonne Labs, transportation costs must also be budgeted. \$346.

## 6.0 Schedule of Tasks and Milestone Events

For a task breakdown and team member roster, please see the included files, "Task Breakdown F08.xls" and "Roster F08.xls".

## 7.0 Individual Team Member Assignments

For a task breakdown and team member roster, please see the included files, “Task Breakdown F08.xls” and “Roster F08.xls”.

## 8.0 Designation of Roles

### A. Assign Meeting Roles

- Minute Taker: John Dominski
- Agenda Maker: Amit Patel
- Time Keeper: James Runge

### B. Assign Status Roles

- Weekly Timesheet Collector/Summarizer: Each Sub-Team leader is responsible for completing this task for their respective teams.
- Master Schedule Maker: James Runge
- IGroups: Jay Taggart/Vaiibhav Patel and Sub-Team leaders