

# System Requirements Specification for: UNTITLED GAME (Project Walrider?)

Hesham H. Salman      Jonathon Kissinger      Sean Mead      Troy Johnson

October 22, 2014

## 1 Introduction

### 1.1 Overall Description

UNTITLED GAME tracks user inputs and behavioral patterns, and uses this data to determine whether or not the user is likely to have ADHD. This is determined by comparing the user response times and input patterns to those of people with and without ADHD. If the application can determine with a high level of confidence that the user is likely to have ADHD, a suggestion is made to the user to visit a medical professional.

This application is to be used by a number of people with and without ADHD so that we may test its detection algorithms.

### 1.2 Definitions

Acronyms and abbreviations as applicable

### 1.3 References

References to other documents

### 1.4 Overview of Developer's Responsibilities

Troy Johnson: Jonathon Kissinger: Sean Mead: Hesham Salman:

Responsibilities in terms of development, installation, training, maintenance etc.

Eg. The developer is responsible for development, installation, loading of all the data relating to books in the library, and training of employees.

## 2 General Description

### 2.1 Product Perspective

This product will interface with a server, transferring anonymized local user data to a remote server for data processing.

### 2.2 Product Functions Overview

1. Game: Hurdle Jumper
2. User input tracking and data collection

3. Data processing to determine whether or not the user has ADHD
4. Result generation
5. Comparative analysis of user's data with average user data

## 2.3 User Characteristics

The users of this application are to be people with and without ADHD. A user survey is conducted at the start of this application such that the results can be calibrated based on the user's age and gender. Of users with ADHD, there is a distinction made between users that are medicated and unmedicated.

## 2.4 General Constraints

This project is to be completed, including coding, testing, and loading of the database by Nov 30, 2014.

# 3 Information Description

## 3.1 Entities and Relationships

Give a list of entities/relationships that are needed, and ER diagrams.

## 3.2 Data Dictionary

Give the relations, their attributes, and for each attribute the type and a description of the attribute. Here's an example.

### 1. customers

account_no	varchar(8)	primary key	account number
name	varchar(20)	not null	Name
profession	varchar(10)	not null	Profession
address	varchar(40)	not null	Address
email	varchar(40)	-	Email Address

## 3.3 Data Flow

Give data flow between major units of your software. E.g., Most useful in case a task has multiple steps requiring interaction with other software or other humans. E.g. To purchase a book, user can enter request, department head can approve, then librarian approves, then order is made.

# 4 Functional Requirements

1. Introductory User Survey
2. Home Screen
3. Volume Control
4. Data Collection
5. Game Functionality
6. Data transfer and processing
7. Result display

## **4.1 Introductory User Survey**

The introductory user survey is displayed on first load of the program. It must be completed before the home screen is allowed to display. The introductory user survey establishes information to better understand the user's state: whether or not they have been diagnosed with ADHD (and if they have, whether or not they are currently taking medicine), their age, and their gender. This information is required so that the calculations regarding the likelihood of ADHD are accurate. In the case that the user does not complete the survey, their incomplete survey's state is saved, and will be loaded upon re-launch of the program.

## **4.2 Home Screen**

The home screen must display two navigation options to the user: the option to begin the game and the option to enter the settings pane. In the case that the user does not select an option, the program will remain in the home-screen state.

## **4.3 Volume Control**

Allows the user to toggle audio volume.

## **4.4 Data Collection**

Collects the following usage metrics from the user:

1. Introductory User Survey
2. Reaction Time
3. Amount Played
4. Number of encounters
5. Average Session Length

Furthermore, error logs are collected in the event of an error.

## **4.5 Game Functionality**

The game involves a single character sprite running rightwards, avoiding obstacles which appear at pseudo-random intervals.

## **4.6 Data Transfer and Processing**

# **5 External Interface Requirements**

## **5.1 User Interfaces**

This used to be important, and required a user manual giving commands screen formats, outputs, error messages, etc. In your case just say the web is used as interface.

## **5.2 Hardware Interfaces**

Interfaces with existing as well as new or special purpose hardware. E.g. smart card reader for authentication. In your case say no special hardware.

### **5.3 Software Interfaces**

List software platforms that are to be supported.

List interfaces with other software packages etc. Make sure to list all software that you interface with.

## **6 Performance Requirements**

Capacity requirements (estimates of no of users, database size, ..) Response time requirements (for different tasks) and throughput (estimates of avg/peak number of transactions per minute, etc). Don't worry about exact numbers but give ballpark figures.

## **7 Design Constraints**

### **7.1 Standards Compliance**

Software development standards as well as organizational standards (eg reports, auditing).

In your case, say not applicable.

### **7.2 Hardware Limitations**

Requirements on machines, operating systems, storage capacities etc. This used to be very important, but these days this matters only for very fast/highthroughput systems, not so much for the things you are doing.

Fault tolerance and reliability requirements should also be listed here.

In your case this is not considered

## **8 Validation Criteria**

Validation criteria for demonstrating successful implementation and user acceptance. In general includes classes of tests and expected software response.

E.g. I will load the database with X amount of data for testing, and an overview of tests you will run.

## **9 Other Requirements**

# Appendices

## A Information Gathering

**Interviewee** Dr. Tony Morelli

**Position** Professor of Computer Science

**Affiliation** Central Michigan University

**Interviewer** Jonathan Kissinger

**Date** Thursday, 9/18/2014

**Start Time** 2:00pm

**End Time** 2:30pm

**Q. Were considering using Unity for our game engine, but we would need access to Unity Pro to run native android code. Does the school grant access to that software and is it appropriate for our needs?**

A. Yes, the school has Unity Pro on the lab computers in PE 400. It may also be available on the Virtual Machines accessible remotely. However, Unity may be a bit more than what you need. You're aware of the project I recently did with interface testing and Unity and it worked well for that but it's really up to you.

**Q. In your research you used ISO standards, are there any applicable to reaction time and our project?**

More than likely, check out ISO 9241 it contains most standards like that. It's primarily aimed at interfaces but there are lots of other standards contained within it.

**Q. We need to file an IRB application to have anonymous surveys and data collection right?**

Yes, the best thing to do is give them a call. They'll tell you which form to fill out and send in. I had to fill out 3 different forms last time because I kept filling out the wrong one. You'll need a professor to sponsor the project, which I will be glad to do if Dr. Lee doesn't wish to.

**Q. Is it possible to save the interviewing step and submit a prototype for publication?**

Yes, that would be called a work in progress and it's something that's not uncommon. They get accepted for publication just like regular papers.