Serious Game

Functional Specification

This is the functional specification of requirement for the creation of new software based on the concept of Serious Gaming though Gamification.

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Introduction

This document is to give a specifying requirement of for the completion of a brand new piece of software based on the concept of serious gaming through gamification.

This document has been dived up into five different sections

1. Objective - The aims and goals of the project outcome
2. Project description - An overview of the application being created
3. Architecture - The functionality of the system and how it all works together
4. Functional requirements - The functionality of the system and how it all works together and how the systems code works including some design
5. Iterations - A breakdown of what is to be achieved during each section of the project and any changes that many need to occur

Objective

The objective of the project is for the development of a brand piece of software that will use images from recognition software that cannot be recognised certain images correctly by recognition software.

To carry out the objective the software will be using the concept of "serious gaming through gamification" to take the task of recognising the unrecognisable images and present it in a nice way to make the task enjoyable.

Purpose

The purpose of the proposed application is to take unrecognisable images that cannot be recognised by recognition software that create a tiring and time consuming task and create an easier way of recognising the images.

Aims

The aim of the application is to take images that are not recognisable by recognition software and develop an application that will allow users to confirm these images though gamification.

Goals

The goal is the creation of a new application that takes the time consuming task of recognising unrecognisable image and present it in a less tiring and time consuming way.

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Project Description

The proposed application is an Android application that is simple for people to use, the application works by taking simple task that can arise and pile up easily which in turn makes a time consuming task to sort out , the app will allow people do these tasks in a more manageable way over time.

The app will allow user to complete these task in their own leisure the reason for this is that the application will use a crowd sourcing method to get the task done by sending the tasks out to people who are users of the proposed application asking for the solution of the task, the application will then compare the gathered results all users that have submitted result by then processing the information send to the servers to come to a correct solution for the task.

Project vision

The project is aimed at the general user, will have easy to read and use using large buttons, images and other comments that will cover most of the screen to give a user a clear view of what they are doing.

System overview

The system for the project will be made up of three parts the application itself, the backend and database

1. Application - The creation of an application that can perform image recognition using gamification
2. Backend - Processing the requested information between the application and database giving the correct response
3. Database - Managing application data

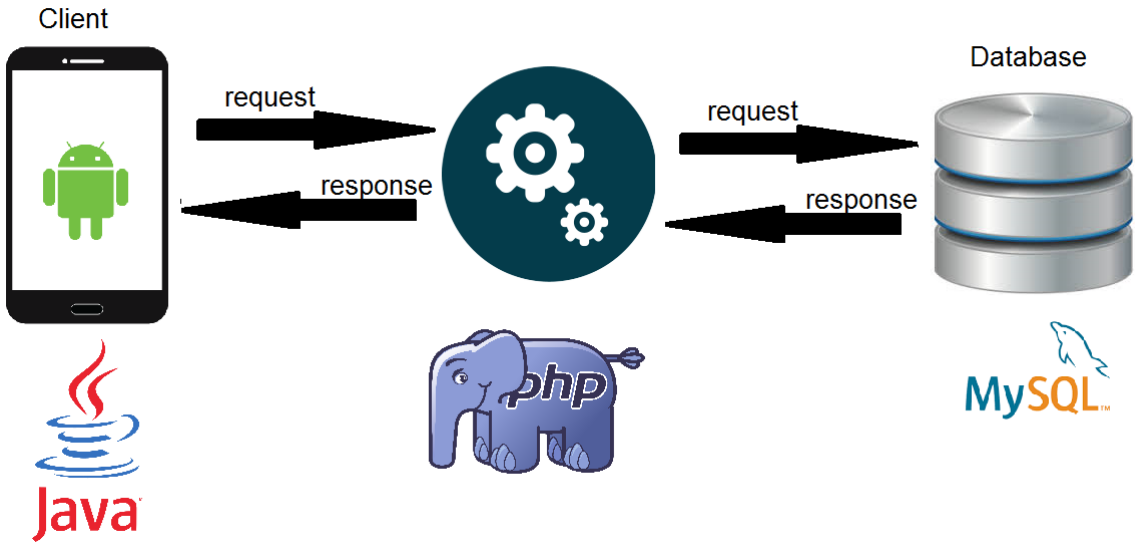

Figure 1

Application

The image recognition software will be using native android this was chosen as it used java which will give the application access to many different libraries and support this will allow the application to run without the need for a constant wireless connection.

Backend

The backend of the system will be the middle component between the android application and database which will be handled using PHP, the reason why PHP was chosen as works well with the chosen database management system and it will run directly on the server cutting out the need to use of a website when communicating between the two components.

Database

The database for the system will be used store the users accounts, image data, and variety of different information that can be sent to it or retrieved. A mySQL management system is t be used to give structure to the system.

Architecture

System Structure

Application

The applications will focus on easy usability but also delivering an entertaining experience when playing the game the aspects of the program

- Player are able to play register with the game
- The players can login into the game
- The player is able to play a game
- A player will be given point for playing the game
- The player can view the list of rewards
- The player may purchase rewards with point given for playing the game
- Communication with the backend

Backend

The backend will manage the processing of requests and responses between the application and database

- Connect the application and database together
- Receive request from application
- Request data from the database
- Receive response from the database

- Send response from the database to the application

Database

The backend will manage the processing of requests and responses between the application and database

- Connect the application and database together
- Receive request from application
- Request data from the database
- Receive response from the database
- Send response from the database to the application

Functional requirements

Since there are many requirement that need to be done for the creation of the projects application for this the project will be split into multiple sections.

- Functionality
- User Interface
- Platform
- External interfaces

Functionality

The functionality of the project will be split into two sections the first section will be for the applications overall functionality while the second section of the functionality will be the game functionality of the project.

Application functionality

The main functionality for the application will be in the game feature of the application not in the standard functionality of the application this is due to the project being a serious game with through gamification therefore the main focus is on the game aspect shown in the game functionality section of this report.

Game Functionality

There is an array of different gaming elements that can be added to this project game functionality will include:

- Leader board
- User rewards

- Points
- Badges

User interface

The user interface (UI) uses the aspects for creating any application using a clear and simple screen that is easy on the user's eyes.

The main concept for the user interface can be seen below this is considered version 0 of the project UI, however this screen only shows the game play but none of the other functionality of the application.

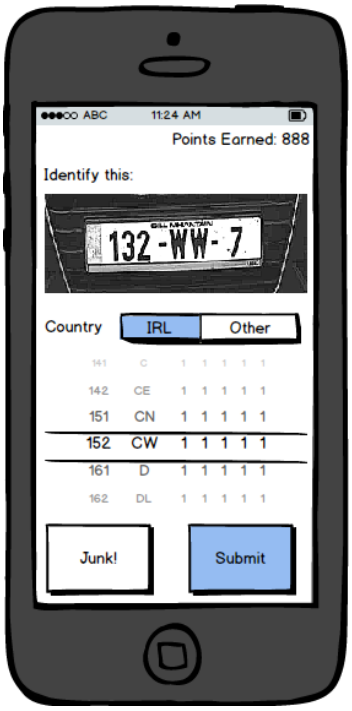

Figure 2

Game play Interface version - 0

In the next updated version of the game play interface players are now able to slide left or right to change the selected country, the display below will then change to the matching countries registration plate once slider has stopped.

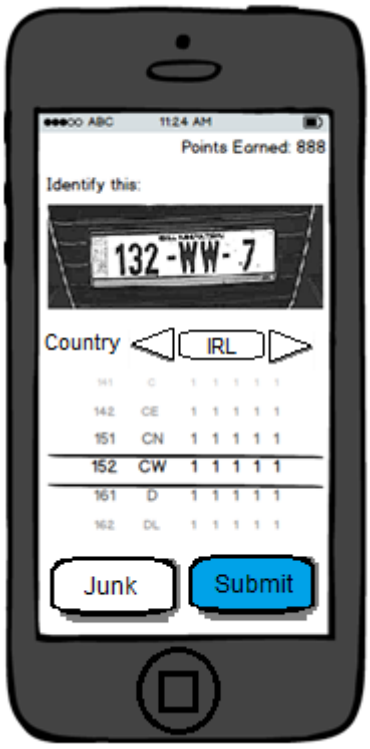

Figure 3

Game play Interface version – 0.3

Platform

The platform that was chosen for the projects is Android, there are many reasons for this choice one of the main reasons this platform was chosen is that there is a large range of phone manufactures use an Android system for their new smart devices where as Microsoft and Apple do not have their systems used by other manufactures this will give the application a larger range of devices to be put onto an used by people.

The Android version that was chosen for the proposed application was Android 5.0 also known as “Lolipop”, this version was chosen to give a large target range allowing older and newer devices to use the application.

Use Case

Use case Diagram

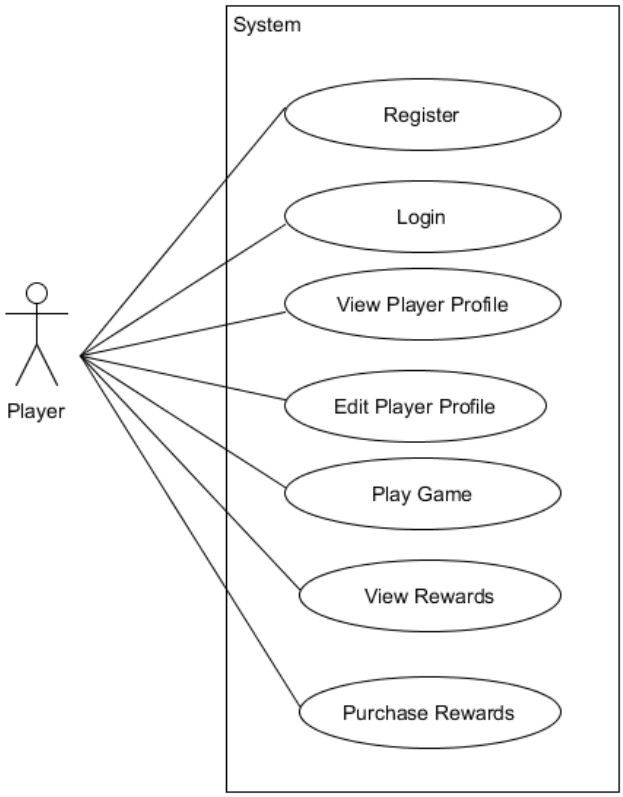

Figure 4

Brief Use Case

Registration

Actor: Gamer
Description:

The gamer can register with the application if they do not already have an existing account by providing their full name, e-mail address and a password.

Login

Actor: Gamer
Description:

The gamer if already registered with the application if they can login using their e-mail address and password provided when they were registering with the application.

View Player profile

Actor: Gamer
Description:

Once the gamer has logged in/registered with the application they will be able to view their player profile with the application this will show their name, username, points accumulated leader board position other things.

Edit Player profile

Actor: Gamer
Description:

Once the gamer has logged in/registered with the application they will be able to edit certain values of their player profile with the application these include name, e-mail address and a password.

Play game

Actor: Gamer
Description:

The gamer will be able to play the available games in one of two modes the first being selection of individual game while the other will be a random selection of the games available.

View rewards

Actor: Gamer
Description:

The gamer will be able to view a list of rewards available for purchase that they can buy with the points they have accumulate.

Purchase rewards

Actor: Gamer
Description:

The gamer will be able to purchase an available reward from a list of rewards once they have the required amount of points to purchase the desired reward, this in turn reduces the amount of points the payer has obtained so far which could cause the player to lowering their rank in the leader board .

Supplementary Specification

Functionality

- Registration with the system
- Users should be able to Login into the application once they have registered
- Select and purchase rewards from a list of available rewards
- The used should be able play a game on

Usability

The application will focus giving the user of the application an easy and fun game to play that is simple and clear when using those even new users will be able to use the application with no complications.

Reliability

To rely on the system better a script will be created that will collect images from a designated folder and send them to the database, while a second script will be created and used check the answers submitted.

Iterations

The project's application is being broken down into three different integrations each will a key factor to carry out and building upon the last.

- First iteration will be building the basic functionality of the game
- Second will consist of add the gaming functionality to the application
- Third iteration

First Iteration

Scheduled Work

- **Project research**
  Research into the project topic of serious game as well research into gamification was carried out as the two are closely linked, other the project topic the different technologies such as platform, languages storage, hosting where all looked into.

- **Design of Application**
  The design of the application was carried out from the look and feel of how the application would work to structure of the systems communication.

- **System Structure**
  The structure for the system was decided for the communication of the system
  - Application – A native Android app
  - Backend – PHP for communication between the database and application
  - Database – mySQL as it works well with PHP
  - Hosting – The application will be locally hosted using a WAMP server

Second Iteration

Scheduled Work

- **Update of project documents**
  All project documents were reviewed and updated. New documents were also started if there was enough information to being else it was noted down into a document.

- **Development of the app began**
  The application was given basic functionality, but not connected to the backend or database. The application was also designed with the layout defined earlier

Third Iteration

Scheduled Work

- **Update of project documents**
  New documents such as the final report were started while all other documents were updated.

- **Linking application to database**
  The backend processing of the application begins using PHP to connect the application to the database.

Conclusion

In conclusion this document gives a clear outline of the functional requirements and basic design for the proposed application. This document gives a clear outline of the system architecture, functional requirements and a planed series of iterations.