Introduction

The document outlines the solution design of the proposed Treasure Hunt Game platform. It details the various components of the solution and would guide the development of the said platform.

Components

The Treasure Hunt Game platform consists of 5 major parts mentioned below.

i. Admin Web Application – CMS
This is application which will be used by administrators to setup new campaigns and manage them. This application will also enable administrators to add new users and assign them the roles of Admin and User. An Admin can manage all aspects of the platform while a user can only access the campaign they are assigned to.

ii. AR Game
This application will be used to fetch and play a campaign based on the campaign id embedded in the QR code being scanned at the brand store. The number of screens and workflow of the game will remain the same for all the campaigns. But the design elements will change as detailed in the Features section of this document.

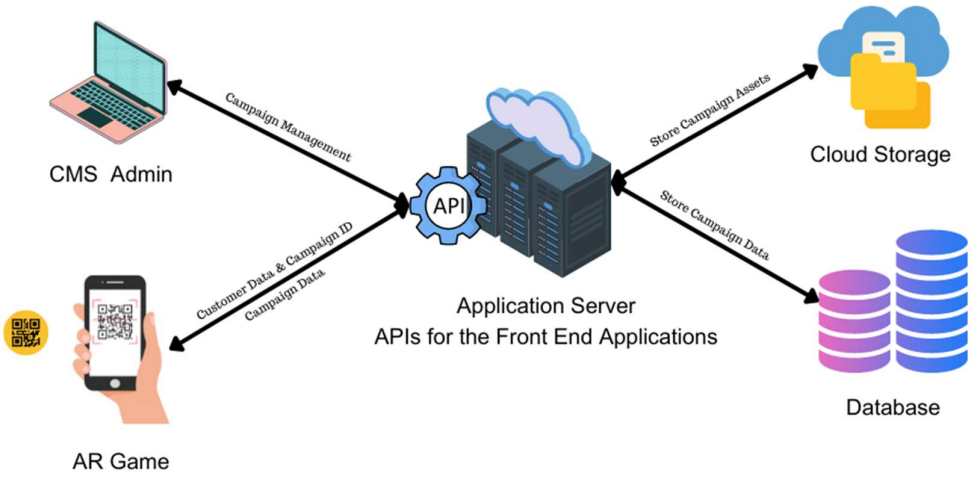
iii. Application Server
The application server will be powering up all the app logic and will expose these functionalities through APIs. These APIs will be consumed by the CMS and AR Game to be able to run CRUD operations on the database and cloud storage.

iv. Cloud Storage
The cloud storage will contain all the different assets being uploaded through the CMS application for creating the campaigns. The AR game will need to access these assets in order to render the different screens.

v. Database
The database will have all the data about the campaigns and the data collected from the user play sessions.

Architecture

The following diagram demonstrates the system architecture and how the components interact with each other at a higher level.



Based on the architecture we propose the following technologies/platforms:

Front End: ReactJS

Application Server: ExpressJS App server hosted on AWS EC2/Lightsail instance

Database: AWS RDS for MySQL

Cloud Storage: AWS S3

Features

This section details the various functionalities of the AR Game and the CMS application.

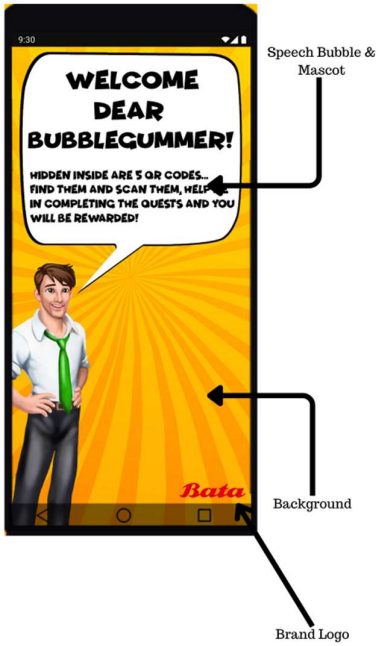
AR Game

The AR game will consist of 11 different screens as outlined below. We are proposing to break the screen elements into individual elements which can be configured using the CMS application.

i. Enter Details:
This screen will be the entry point for the AR game. Once this user scans the QR code in store to start the experience. The first screen would ask the user to enter the contact details. After entering the details the application will decide if the user is eligible to play the game by checking the rules of the campaign configured in the CMS app.

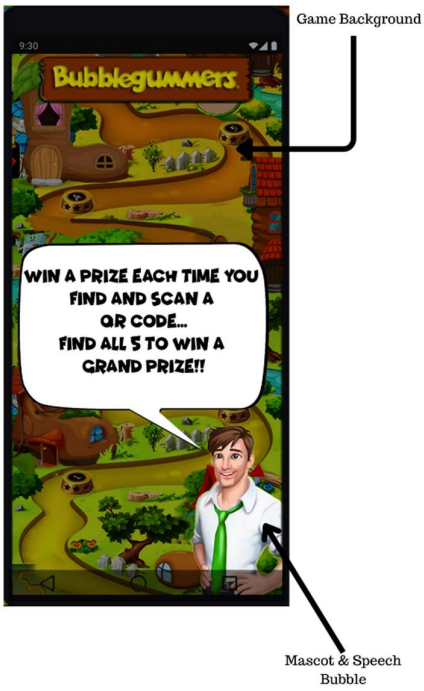
ii. Landing Screen:

If the user is eligible to play the game, the user will be greeted with the landing screen. The 3 design elements will be rendered based on the data stored for this campaign



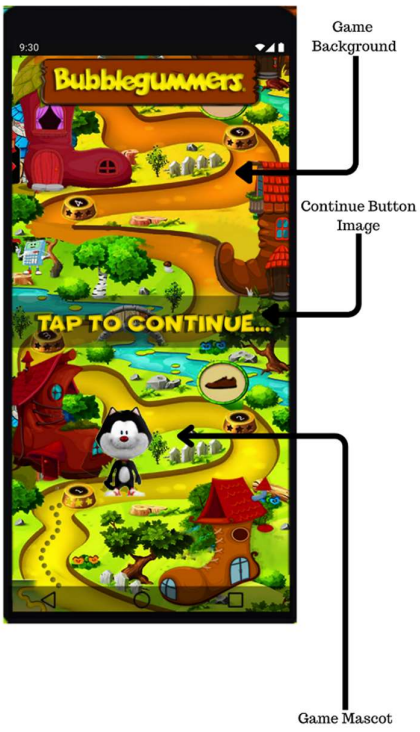
iii. Intro Screen

The next screen introducing the user to the game. The 2 design elements will be rendered based on the data stored for this campaign



iv. Level Screen

The level screen shows the user's progress in this game session. The 3 design elements will be rendered based on the data stored for this campaign.



v. Scan Screen

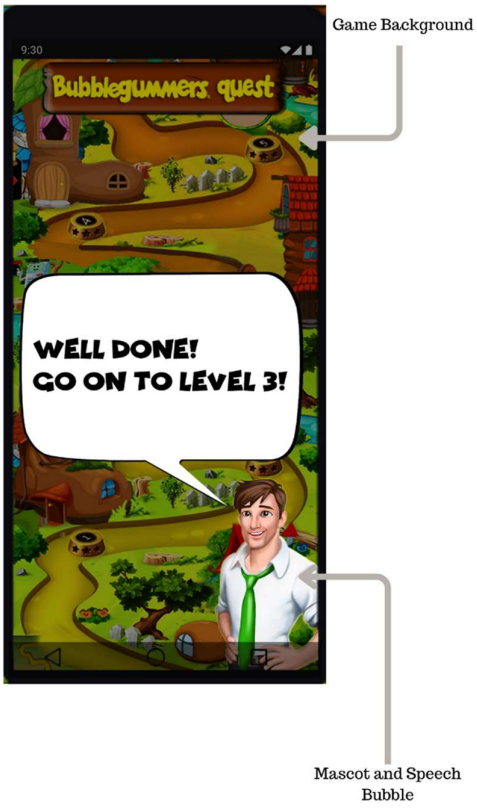
This screen will allow the user to scan a qr code. When the application detects any qr code. It should read the embedded text in the qr code and check if it matches with scan code configured for this campaign. If not then the application should indicate the user to scan the correct qr code. If a new QR code is scanned and it matches with one of the qr codes configured for the campaign and has never been scanned before then the app should progress. The 2 design elements will be rendered based on the data stored for this campaign.

vi. Scan Feedback screens

Based on what is scanned the app will show a message the text/image configured for this QR code. The 3 design elements will be rendered based on the data stored for this campaign.

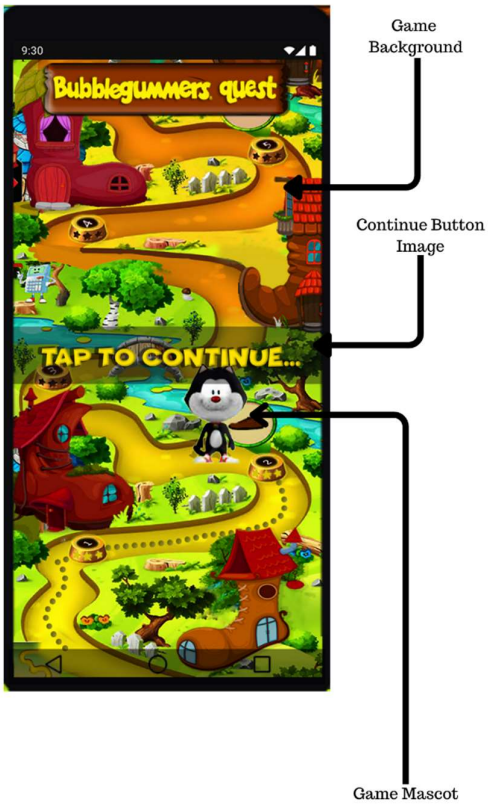
vii. Level Completion Screen

On the completion of correct scan, the user will be presented with a congratulatory message. The 2 design elements will be rendered based on the data stored for this campaign



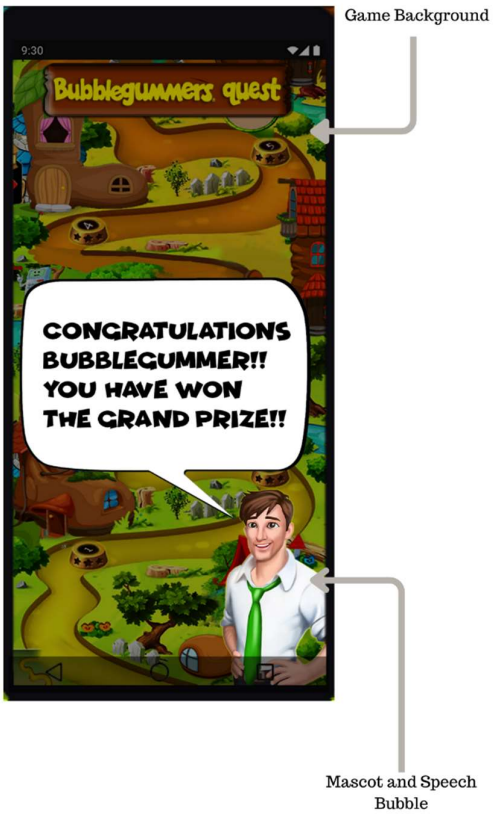
viii. Level Progressed Screen

The user will be shown an animation where the game mascot will move to the next level until it reaches the final and the 5th level. The 3 design elements will be rendered based on the data stored for this campaign



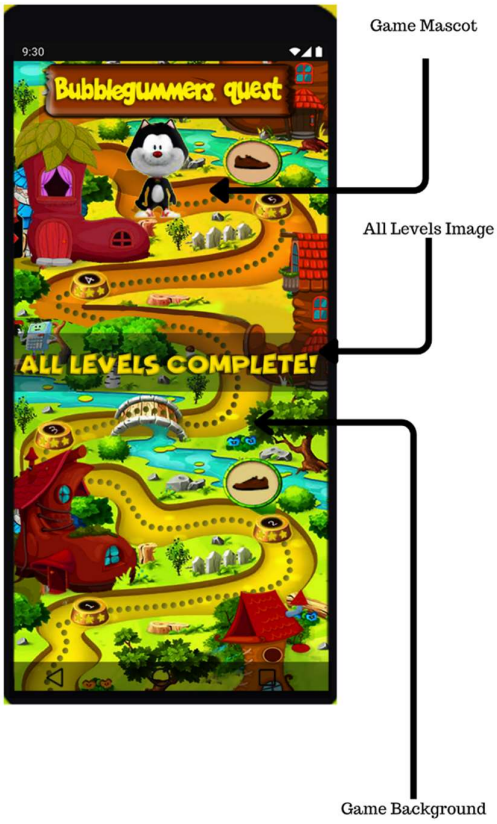
ix. Game Completion screen

Once all the 5 qr codes are scanned and treasure hunt finished, the user will be shown this congratulatory screen with the 2 design elements configured for the campaign.



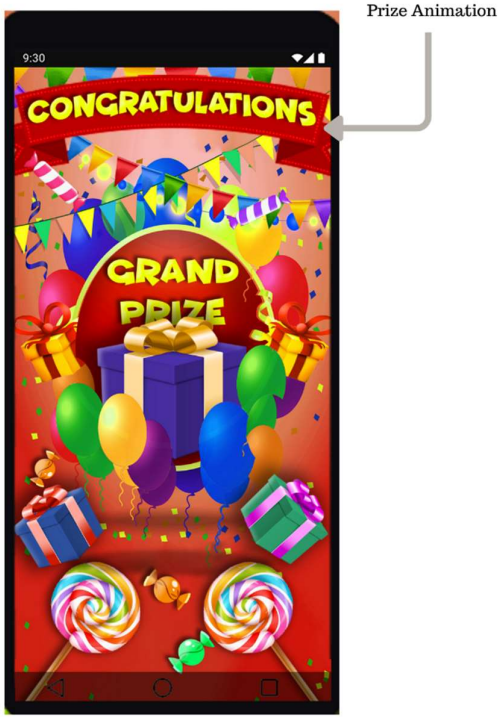
x. Game Completion Screen 2

The level screen will be reused here to show that the mascot has reached the last level in the game.



xi. Reward Screen

This is the final screen which will show the reward earned for completing the game. This reward will come from the configuration done on the CMS app for this campaign.

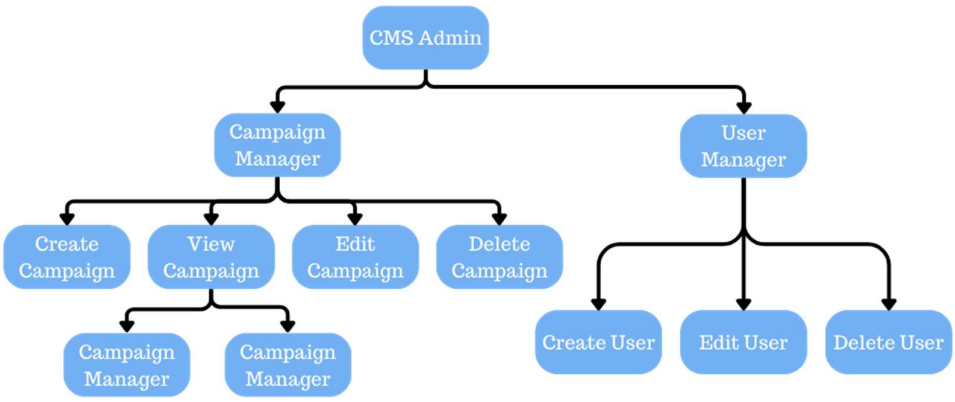

Prize Animation
9:30
CONGRATULATIONS
GRAND
PRIZE

CMS Admin

The CMS Admin web application will provide the management functionalities to manage the campaigns. The following tables outline the various features which the CMS Admin web application will provide.

Feature	Description	Functionality
Campaign Manager	This will hold all the functionalities for managing campaigns	Create Campaign View Campaign Edit Campaign Delete Campaign
User Manager	This will hold all the functionalities for managing users of the CMS Admin	Create User Edit User Delete User
Create Campaign	Creates a new campaign for a brand with custom assets	Configure Landing Screen Configure Intro Screen Configure Level Screen Configure Scan Screen Configure Scan Feedback Screens Configure Level Completion Screen Configure Level Progressed Screen Configure Game Completion Screen Configure Reward Screen Generate Main QR code Generate 5 QR Code Configure Game Rules Add Users Live On/Off
Edit Campaign	Edit any campaign data	Edit any of the attributes of Campaign detailed in Create Campaign
Delete Campaign	Delete any campaign data	Delete Campaign and Data
View Campaign	View any campaign data	View Campaign Details
View Campaign Data	View the user data collected during the campaign	View Collected Data
Create User	Create any user data	Create User with following details Email Password Type: Admin/User
Edit User	Edit any user data	Edit and Save
Delete User	Delete any user data	Delete user login

The following hierarchy diagram shows how the CMS Admin application features will be distributed inside the application



Database Tables

The application data will be stored in the following three tables. Please note that the final database design will be present in the technical documentation delivered at the closure of the project.

- CampaignConfiguration
  This tables will contain all the configuration data for created campaigns and will have links to the assets stored on the cloud storage.
  Primary Key: campaignid
- Users
  This table will have all data for each user having access to the CMS Admin application
  Primary Key: emailid
- CampaignData
  This table will have all the data collected from end user for each campaign.
  Primary Key: id (int AUTO_INCREMENT)