ScavengeRUS - a hosted solution enabling third parties to create customized Scavenger Hunt style engagements with their target audiences.

Executive Summary:
A geographic-based scavenger hunt to area businesses with prizes awarded in a variety of categories. Participants will sign up in advance, be given a list of locations/businesses where they can find "treasures", and visit as many locations as they can for a specific time-based hunt. Prizes awarded to various categories based on donations from local businesses (e.g. Free dinner for two for the person who visited the most locations in the fastest time, or Target gift card for the child between 6 and 10 with the most visits).

This document describes a tiered approach to building a revenue-generating application that can be used by third parties for a variety of purposes including fundraising, community development/awareness, team building, and more.

The ultimate solution will be a browser-based white-labeled application that can be customized easily and supports a variety of revenue models. Each tier deployed will have an increasingly more customizable way to create a list of tasks that need to be performed as part of “Scavenger Hunt”. These tasks will ultimately include customized trivia, location attainment, image collection, QR code scanning, and combinations thereof. The tasks can be delivered to participants in a specific order, in random order, or incrementally. Achievement points can be associated with each task and each participant is presented with their current point and total possible points along with real time ranking.

Participants will be given a temporary access code unique to them for that hunt which can be delivered via email or text message. The access code remains active for the duration of the specified hunt (which allows third parties to create multiple concurrent hunts and participants can be involved in more than one hunt at a time). Teams can be formed by sending the same access code to multiple participants (each person can log into the hunt with the access code concurrently or they can choose to share a device).

All personal information about participants is encrypted on the main server. Sponsors and hosting organizations can only access the information indirectly through the application. For example, the host can request an encouragement text be sent to all enrolled participants but the host will not “see” the phone numbers; the application will send out the text. Participants can opt out of messages from specific sponsors, all sponsors, or all organizations involved in a specific hunt, or all communications from the main application.

Tiered Development:

The tiered approach is designed to provide a working solution at each tier leading up to the final product capability. This tiered approach for development will allow successive teams of students to be involved in its development each semester. They will gain experience in working with an existing code base and learn the importance of documentation, bug tracking, code comments,

release management and other real-world aspects of software development for which they might otherwise only have an academic exposure to. In addition to the educational opportunity, it also provides them with the personal satisfaction of being involved in the development of a working, deployed product. This also provides fodder for their resumes upon graduation.

This approach also provides an opportunity to engage other disciplines within the university such as business development, marketing, digital arts, social sciences/human behavior, etc.

The first tier is boilerplate hunt for locations distributed around a fixed geographic location (e.g. in various buildings on a university campus). Each participant is sent an access code via text message and a link to a webpage for the hunt via email. Being browser based allows participants to use any internet connected device they want. Scanning a QR Code or manually typing in a keyword posted at a location will complete a task. They are presented with a fixed list of tasks with a completion indicator next to each. They also have the ability to edit their display name which defaults to a random number. Their progress is tracked on the server by the access code so they could use more than one device during the hunt. When the hunt is concluded they are sent an email with their results and ranking.
More detailed requirements for Tier 1 are at the end of this document.

The second tier expands the type of tasks to include Multiple Choice trivia, Single Word answer Trivia, and combinations of these trivia formats with QR codes. Additionally, the tasks can be fixed list, random order (for each access code), or incremental (where tasks must be completed before the next task is shown). The task list presentation, once defined, will be the same for all participants.
This tier also introduces the role of System Administrator (Admin). The Admin person has a defined username and password to access the site. At this tier there is only one hunt and it is always active. The Admin is presented with the ability to create/edit/delete tasks for the hunt. Each task has a display label that is shown to the participant, an answer which is free text. They can scan a QR Code and associate it with one or more tasks. (answers are considered a match if they are string matches ignoring case and empty space thus QR Codes will have their associated text stored in association with a task). They can edit how the tasks are presented (fixed list, random, or incremental. They can define the start and end time for the hunt. If a participant tries to access a hunt outside of these times, they get a message letting them know when the hunt will be/was active. The Admin can also edit the introduction text shown at the top of the task list. The Admin is responsible for generating and maintaining a list of access codes for the hunt. Each access code can optionally have either an email or phone number associated with it. The Admin can select from the list of access codes and initiate a notification whereby an email and/or text message is sent out for each selected code.

The third tier expands the customization aspects of the hunt and allows for multiple hunts to be active at the same time. All hunts start on the same landing page. By entering an access code, the participant is forwarded to the appropriate hunt (thus, a single participant can play in more than one hunt by entering different access codes). Each hunt has a customized page each participant sees with a logo heading, color scheme, introduction text, and task list to be

completed. A set of statistics for the hunt are displayed along the right side of the page including current number of completed tasks, total number of tasks in the hunt, real time count of players logged in, total number of players invited to the hunt, ranking of current player, and time left to complete the hunt.
The Admin will have the ability to create/edit/delete a hunt from a list of defined hunts.
This tier also introduces the role of Hunt Coordinator (HC). The Admin can generate a special access code and PIN for the Hunt Coordinator for a selected hunt when it is created or when they edit it. At this point, The Admin should not be the one that defines and manages a specific hunt but they will have the ability to do so. The HC should perform these hunt specific functions previously performed by the Admin in the second tier. The HC will have the ability to upload a list of email addresses and/or phone numbers to generate access codes for their hunt.

The fourth tier adds location based capabilities. A tasks can be tied to a GPS location and thus can only be completed if the participant is within proximity of that location (proximity can be defined as On, Near, Within Sight which will translate to a predefined distance of +/- 10 feet, +/- 25 feet, +/- 50 feet; the default is Near). Hunt Coordinators can either manually enter the GPS location or use the location feature of their own device to capture the GPS location and associate it to a specific task in a specific hunt. The HC has the option to define the entire hunt as location based tasks in which case, the presentation of tasks is displayed on a map with flags indicating task locations (flags are solid red if not completed and checkered black/white when completed).

The fifth tier adds more administrative functions to enhance the ability to customize hunts to third parties and introduces the concept of campaigns (a collection of hunts associated with the same third party). It also introduces the ability for HC to make their hunt “public access” which enables anyone to register to participate (all that is required is a valid email address and phone number; an email is sent to them with the link to the hunt site and their access code is sent as a text message to their phone). Both the email address and the phone number are encrypted on the server and only accessible directly from the application. Third parties do not have direct access to this information.
This fifth tier also introduces themes. The HC can choose from three or more themes. e.g. Easter Egg hunt, Treasure Hunt, Medieval Quest

The sixth tier adds revenue streams to the hunt by allowing local businesses to sign up as sponsors of and destinations for a specific hunt. There will be at least four (4) levels of business participation: Business sign up in order to create awareness for their business/location and to also drive foot traffic to their location(s). Some businesses may choose to sponsor a hunt to support the third party hosting the hunt such as a non-profit. In these situations, the business may be a corporate entity and will not want foot traffic to their location, opting instead for some trivia or similar task. The four levels of business participations include:

a) Destination ($100)- a business which will host participants into their establishment (e.g. retail or restaurants or grocery stores). These business may offer a special promotion for participants (e.g., free ice cream cone, discounts, gift certificates, or special donation to FP with any purchase)

b) Promoter ($500 + prize) - a business that provides prizes to winning participants (e.g., dinner for two, apparel,). Each Promoter will be listed on the website as donating prizes to the event. They also have an option of providing a message or offer that the application can send out to all registered players (we send it for them; we don't give out the player's contact info)

c) Sponsor ($1000) - a business that helps pay for the event and the marketing of the event. Sponsors will be able to put their logo and tag line in a rotating banner on the website (similar to the radio spots NPR does). They also have an option of providing a message or offer that we can send out to all registered players (we send it for them (we don't give out the player's contact info)

The application takes a percentage of these fees as its main revenue stream. All businesses must sign up and pay for their support level through the application.

The seventh tier adds customizations for third parties to enhance the overall experience. This includes levels of customization:

a) Trial (free) - no customizations but is full featured, providing a small selection of predefined skins/schemes/themes for their hunt and the ability to name the hunt and provide an introduction on the landing page. This level only allows a single hunt to be active per registration by the third party.
b) Annual ($200/annually) - Same as Trial but allows third party to run as many hunts as they like but only one can be active at any given time (no overlap). Allows the third party to upload Logos to be displayed on marketing material such as QR Codes, website, messaging to participants.
c) Full Service ($TBD) - Same as annual but allows third party to run concurrent hunts. In addition, development team will work with them on custom skinning and the development of a custom theme. This may include, for example, GIFs custom to their hunt.

Similar Products:

https://www.letsroam.com/activities/type/scavenger_hunt_charity_fundraiser

https://vomo.org/blog/20-virtual-fundraisers-that-are-fun-and-really-work/

https://www.scavify.com/

Tier 1 Detailed Requirements:

Constraints
Must be a client-server architecture.
All data must be stored on the server (no cookies).
Client interface is browser based (vendor neutral).
Client interface is device neutral (e.g. works on phones, tablets, laptops, etc.)
QR Codes must be unique within a single game.

Epic: Tier 1 Release
Theme: Admin is able to manage multiple scavenger hunts
User Stories:

1) As an Admin, I want to be able to see all the hunts in the system and their status so that I can manage them effectively
    a) Should be able to sort the list by date created (oldest first or newest first), only active hunts, only expired hunts, only pending hunts, date started (oldest first or newest first)
2) As an Admin, I want to be able to create a new hunt
    a) Set a start date and an end date
    b) Assign a title and theme
    c) Set the invitation text that is included in player invitations
    d) Assign a list of tasks players are to perform
        i) A task consists of a label displayed to players, the Lat/long of the location where they perform the task (must be precise enough to establish if someone is within 50 feet of it), a QR code value which must be human consumable and relevant to the task in question, a QR code which encodes the value
    e) Set the order the list appears to players during the hunt
    f) Assign a url for the hunt
3) As an Admin, I want to be able to edit an existing hunt
    a) Can only edit hunts that are Pending or Active
    b) Admin can edit any part of the hunt except the status and creation date
    c) If an admin changes the status to Active, all the players associated with the hunt at that moment will receive a text message telling the hunt has started
4) As an Admin, I want to be able to quickly create accounts for a list of people so that I don't have to manually enter each person
    a) Create a new account using a person's email address and phone number
    b) Find an existing account using a person's email address and phone number
    c) Find an existing account using a person's access code
    d) Invite someone to participate in a hunt by sending the hunt's url and a invitation message to their email, then to send their unique access code to their phone via text message
    e) A player's access code is unique to the hunt they are invited into (they can have multiple access code but each code goes to a different hunt)
    f) Access codes can be active or disabled or pending invite

5) As an Admin, I want to be able to invite one or more people to play in a specific hunt so that I can control/manage who is involved

Theme: User is able to play in a scavenger hunt
User Stories:

1) As a Player, I want to be able to join a hunt so I can participate
    a) All players have an access code that is unique to them and a specific hunt
    b) The player enters that code on the hunt url page in order to play
2) As a Player, I want to be able to team up with other people so we can participate in the hunt as a group
    a) More than one person can use the same access code at the same time on different devices in order to “play as a team”
    b) Player screens need to be refreshed so they can see progress other team members have made
3) As a Player, I want to be able to easily record in the game that I completed one of the tasks in the hunt so that I can get credit for my progress
    a) For the first release, all tasks are locations the player must go to
    b) If the player has location enabled, they can hit “I am here” to compare their location to the lat/long associated with the list of locations in the hunt (must be within 50 feet)
    c) If the player has a camera enabled, they can hit “scan QR Code” to read in the QR code symbol located at the hunt location
    d) Alternatively, the player can enter the text that appears below the QR code symbol located at the hunt location
    e) The player should be given a status of their submission
        i) Valid entry, progress is recorded
            (1) A valid entry updates their status on the server with a timestamp
        ii) Invalid entry, no progress recorded
        iii) Unable to validate, no internet connection
4) As a Player, I want to be able to see how well I’m doing compared to other players so that I can be competitive
    a) A player that is logged in, can see the list of tasks associated with the hunt
    b) The list is automatically ordered to show unfinished tasks first
5) As a Player, I want to be able to see, on a map, which task locations I have visited and which ones I haven’t so that I can determine where to go next
6) As a Player, I want to be able to customize my username and profile picture so that I can manage the identity others can see for me
7)

Players…
Players are identified by their email and text enabled phone number.
Each player will be assigned a human consumable and human friendly access code.

Access codes are sent to the Player's phone as a text message ("Thank you for Playing ScavengeRUs: Your access code is <insert here> ")
Access Codes are unique to each player.
The URL for the game is sent to each Player's email at the same time as their access code is sent to their phone. ("Thank you for Playing ScavengeRUs. The current hunt is accessed here <insert url> and your access code has been sent to your phone. Good Luck and have fun!")
Each Player will have game status stored on the server.
Each Player will have a username associated with them (defaults to a random number).
Additional information about each player may be stored on the server.

Game…
Players are presented with a fixed list of task labels upon entering a valid access code.
Each task label in the list is displayed with a completion indicator next to each.
The game consists of a variable length list of tasks (in Tier 1 this will be QR Codes only).
Each task has a GPS location associated with it and a label.
Each QR code is stored as an image and decoded text.
Scanning a QR Code from within the client interface will complete a task.
Alternatively, Players can manually enter the decoded QR Code from within the client interface to complete a task.
An invalid QR Code (i.e. one not in the list) or an invalid decoded text will result in an error message to the Player.
A valid QR Code or a valid decoded text will result in the status indicator changing to show task completion in the user interface for that Player.
Task completion is updated to the server along with a timestamp.
If the Player completes all the tasks in the list, they get a Congratulations message in the client interface and in an email.
Players also have the ability to edit their display name which defaults to a random number.
When the game is concluded, each Player is sent an email with their results and ranking.