Using VR to Lower Corporate Recruitment Costs

Unofficial Entry to MIT Reality Virtually Hackathon by Team Kankou, led by Oppkey

Image Capture with THETA V API and Display with Google Cardboard (mobile phone)

Introduction

Product Name: Corporate VR Engine

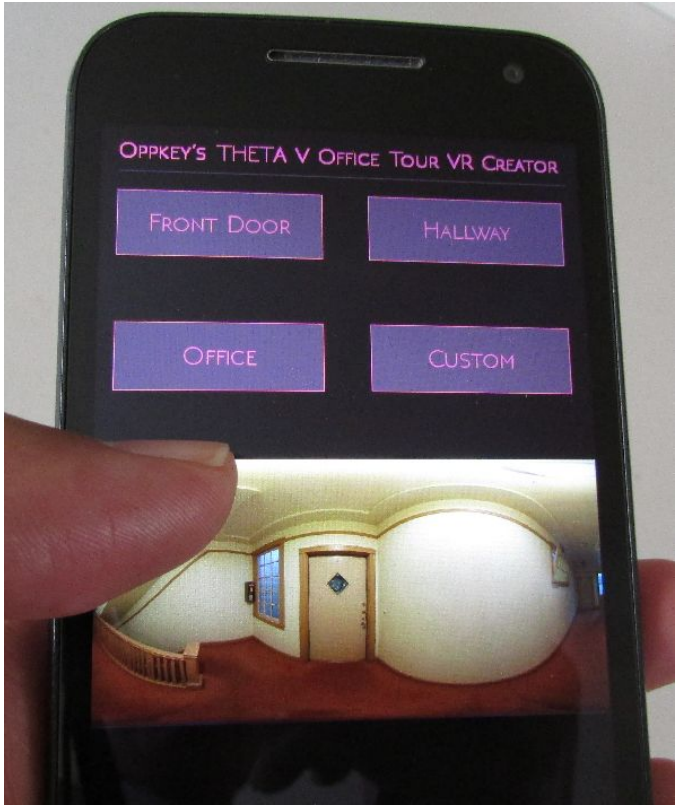
Problems We Solve:

- High costs of potential new hires travelling to corporate locations
- Flat images of office does not convey the “cool” experience that most corporations want to convey
- Creating VR tours is generally seen as too techie for a Human Resources (HR) manager to take on the project

Product Features and Benefits

- Viewable by anyone with mobile phone and cardboard
  - HR staff can send Google Cardboard to potential recruits to use with their mobile phone
  - 3D assets (like a VR chair) can show future plans for office space
- Reduces VR site creation costs
  - Uses simple HTML with A-Frame, enabling junior staff to edit a simple template
  - automatically organizes pictures into groups with specific tags per image file (makes it easier for junior staff to insert proper image)
- Reduces demands on HR staff
  - Simple one-level menu with buttons exposed on first level
  - Automatically sends images to junior web developer using mobile phone data connection
  - HR staff does not have to go back to computer to download images with USB

Specialized Mobile App for HR Department



Single-purpose mobile app only creates office tours

HR staff only needs to press three buttons and they are done

App can be customized for a pre-set workflow

Example Tour

Start at the front door, give introduction to HR candidates

Walk through company site, showing company location strengths, branding

VR experience allows HR candidates to “look around” at their own pace

THETA V is central tool for HR staff, allowing them to grab content through mobile app, place in Dropbox / G Drive, all in one step

Example: Tour of Oppkey World Headquarters

Flow of tour can be customized with multiple rooms and directions - Can add more company branding

Technology Story

Optimized for Rapid Prototyping and Customization

- Mobile app is built with Python to allow changes in minutes
  - THETA WiFi API
  - Requests for simplified HTTP
  - rapt-pygame and pygame_sdl2 to allow Python to run on a mobile phone
- VR app is built with HTML and JavaScript using the A-Frame Framework
  - Hosted on glitch for easy collaborative development
  - Uses GL Transmission Format (glTF) to optimize transmission of 3D assets over the Internet

HTML - JavaScript - A-Frame code

Running in Glitch
kankou.glitch.me

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>The Door by Team Kankou for MIT Hackathon</title>
    <meta name="description" content="Team Kankou for MIT Hackathon">
    <script src="https://aframe.io/releases/0.5.0/aframe.min.js"></script>
    <script src="https://npmcdn.com/aframe-animation-component@3.0.1"></script>
    <script src="https://npmcdn.com/aframe-event-set-component@3.0.1"></script>
    <script src="https://npmcdn.com/aframe-layout-component@3.0.1"></script>
    <script src="https://npmcdn.com/aframe-template-component@3.1.1"></script>
    <script src="components/set-image.js"></script>
    <script src="components/aframe-bmfont-text-component.min.js"></script>


  </head>
  <body>

    <a-scene>
      <a-assets>
        <!-- Sky -->
        <img id="frontdoor" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Ffront-door.jpg?1507420175349">
        <img id="frontdoor-thumb" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Ffrontdoor-thumb.png?1507422242431">
        <img id="hallway-thumb" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Fhallway-thumb.png?1507422716014">
        <img id="office-thumb" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Fgpgkey_logo.png?1507495653649">
        <audio id="click-sound" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Fopen_creaky_door.ogg?1507423206045"></audio>
        <img id="hallway" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Fhallway.jpg?1507420180797">
        <img id="office" crossorigin="anonymous" src="https://cdn.glitch.com/0a206311-a2e9-43c1-bb60-922daf36091f%2Foffice.jpg?1507420185497">

<!--        3d asset test -->
          <a-asset-item id="brainstem" src="https://cdn.aframe.io/test-models/models/brainstem/BrainStem.gltf"></a-asset-item>
          <a-asset-item id="chair" src="https://codetricity.github.io/armchair/chair.gltf"></a-asset-item>



        <!-- Image link template to be reused. -->
        <script id="link" type="text/html">
          <a-entity class="link"
            geometry="primitive: plane; height: 1; width: 1"
            material="shader: flat; src: ${thumb}"
            event-set__1="_event: mousedown; scale: 1 1 1"
            event-set__2="_event: mouseup; scale: 1.2 1.2 1"
            event-set__3="_event: mouseenter; scale: 1.2 1.2 1"
            event-set__4="_event: mouseleave; scale: 1 1 1"
            set-image="on: click; target: #image-360; src: ${src}"
            sound="on: click; src: #click-sound"></a-entity>
        </script>
      </a-assets>

      <!-- 360-degree image. -->
      <a-entity rotation="0 -110 0">
        <a-sky id="image-360" radius="10" src="#frontdoor"></a-sky>
      </a-entity>

<!--        Add 3d model -->
<!--          <a-entity gltf-model="#brainstem" position="0 -5 -5" scale="3 3 3"></a-entity> -->
      <a-entity gltf-model="#chair" position="-5 -5 -6" scale="2 2 2" rotation="0, 50, 0" ></a-entity>


      <!-- front door -->
      <a-entity id="links" layout="type: line; margin: 1.5" position="1 -1 -1">
       <a-entity template="src: #link" data-src="#frontdoor" data-thumb="#frontdoor-thumb"></a-entity>
<!--            <a-entity id="frontdoorlink" template="src: #link" data-src="#frontdoor"></a-entity>
 -->
      </a-entity>

<!--        position of hallway -->
      <a-entity id="links2" layout="type: line; margin: 1.5" position="1 -1 -4">
              <a-entity template="src: #link" data-src="#hallway" data-thumb="#hallway-thumb"></a-entity>

      </a-entity>

<!--        position of office -->
      <a-entity id="links3" layout="type: line; margin: 1.5" position="4 1 -8" rotation="0, 0, 0">

      <a-entity template="src: #link"
                data-src="#office"
                data-thumb="#office-thumb">
      </a-entity>
      </a-entity>

      <a-entity id="links2" layout="type: line; margin: 1.5" position="0 -1 -8" rotation="180, 0, 180">

      </a-entity>

    <!--   <a-entity position="0 0 8">
        <a-sphere color="yellow" radius=".1" id="theta3-thumb"></a-sphere>
      </a-entity>
    -->

      <!-- Camera + cursor. -->
      <a-entity camera look-controls>
        <a-cursor id="cursor"
          animation__click="property: scale; startEvents: click; from: 0.1 0.1 0.1; to: 1 1 1; dur: 150"
          animation__fusing="property: fusing; startEvents: fusing; from: 1 1 1; to: 0.1 0.1 0.1; dur: 1500"
          event-set__1="_event: mouseenter; color: red"
          event-set__2="_event: mouseleave; color: black"
          fuse="true"
          raycaster="objects: .link"></a-cursor>
      </a-entity>
    </a-scene>
  </body>
</html>
```

Graphical Assets - .PNG and .glTF files







start here

Front Door

Hall way

Office


open_creaky_door.ogg


ArmChair.gltf


chair.gltf


chair0VS.glsl


chair0FS.glsl


chair.bin

OFFICE

Tips on 360 HR Photography

1. If you want to show are general environment with the THETA, taking pictures at eye level provides a very familiar point of view. We used a tripod and a extendable monopod.
    a. Be careful of top-heavy monopods, tipping over and scratching lens is a common problem, not easy to repair
2. Also, suggest setting the THETA “Shooting Method” to Self-timer and 10 seconds, so you can step out of the picture. This focuses attention on the corporate location, not the photographer.