Initial Project Description

EECS 581
Team 4
Meeting time: 10/7, 11/18  11:30am
Teammates:
- Haonan Li, h403l224@ku.edu
- Hao Luo, h965l741@ku.edu
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Team Leader: Haonan Li

Project Sponsor: None

Project Description

The project we are doing is called ExploreKU which is a mobile application that can provide users information about the KU main campus. The idea was first proposed in EECS 448 as a course project. During that time we built an Android application that held the information such as buildings’ info, addresses, departments, bus stops, and parking lots. We believe this project can provide KU students, especially freshmen, useful information about our campus and all the utilities available to them. For example, one can use this app to search for parking lots and bus stops around him/her. He/she can also use this app to understand and appreciate the stories behind each building on our beloved campus.

This capstone project is an extension toward that idea. In this project, we will introduce a new functionality called “Augmented Reality View”. The goal is to display aforementioned point-of-interest information as stylish overlays on the user’s camera view.

In addition to extending the functionalities, we are going to build a web service to host and respond to request to the location information previously stored in an embedded database. The mobile application will post a request to the server with its geospatial data, and the server will respond with the data about the locations around the user. This will not only improve the performance of the application, but also give great extensibility for future functionalities.

Project Milestones

1. Gather data that is needed for the application. It is mainly geographic coordinates and description of points of interest in Lawrence, KS. We will first
try gather it from the officials, e.g. Lawrence Tranist, KU Parking, etc.. If we could not get data from them, we would build all the info database manually. **Proposed deadline: by the end of the fall semester.**

2. Design the API specifications. Since we aim to implement the web service to use REST API with, we need to specify the parameters and return values. Only by this we could focus our goal to implement the service and the connection manager of the AR application. **Proposed deadline: by the end of the fall semester.**

3. Set up and implement the web service. This includes handles all the query API aforementioned and building the database. Unit test is necessary for the consistency and should also be done by the deadline. **Proposed deadline: before spring break starts.**

4. Implement the AR application in Unity. This will include designing the user interface, system mechanics, and connection manager to the server. Testing with mock-up data should also be done by the deadline. **Proposed deadline: before spring break starts.**

5. Connecting our web service, database and AR application together and debug any unexpected behaviours. **Proposed deadline: before 2017 April.**

6. Produce the documentation about the application, including the functions, classes, server, API, and every technical details used during the implementation process. **Proposed deadline: before the due of the senior design project**

**Project Budget**

We will host our web service on the cloud. To simplify our deployment process, we will use Platform-as-a-Service (PaaS) such as Heroku. This is our specific budget:

- **Hosting:**
  - Cost: $25 per container/month
  - Vendor: Heroku
  - Time: at deployment (April/May 2017)

- **Software licences:**
  - Cost: Varies
  - Vendor: Unity (plugins + assets), third-party programs and libraries
  - Time: as needed

- **Unity suscription:**
  - Cost: $35 per seat/month (Plus plan)
  - Vendor: Unity
  - Time: Throughout the development process

- **GitHub suscription (for private repositories):**
  - Cost: $25/month
○ Vendor GitHub
○ Time: as needed

Work Plan

● Haonan Li: AR application design and implementation (priority), API specification, project management.
● Hao Luo: database design and collection (priority), testing.
● Yang Zhou: API specification (priority), database design and collection, testing.
● Mohammad Isyroqi Fathan: web service implementation (priority), web service management and support, testing
● Hung Nguyen: Administration system (priority), API end points, testing.

Github Address