Boston University
Electrical & Computer Engineering
EC463 Senior Design Project

First Prototype Testing Plan

WhereTo

by
Team 5

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Required Materials

Hardware:

- A personal computer

Software:

- Python3 Flask API
    - Image gathering
        - Google Street View Static API
    - Image text processing
        - Google Cloud Vision API
- Web Browser
    - Accessing locally hosted API via URL

Set-Up

Besides a personal computer, this test is entirely software-oriented and requires no physical setup. Our Python script is to be run locally on a personal computer and then accessed via a web browser on the same machine. This allows us to run the Python API without having to host it. Our API is designed to take as inputs two coordinates, an initial and a final coordinate, it will then progress between these two coordinates and take a set of pictures from Google's Street View Static API every few meters. After collecting the images between the two supplied coordinates, the images are fed into Google's Cloud Vision API in order to have any text present within the images be read and output locally to a JSON formatted file.

Pre-Testing Setup Procedure

1. Ensure Python 3 and Flask are installed on the server, also install necessary Python libraries for integration with Google APIs (like google-api-python-client).
2. Obtain and configure API keys for Google Street View Static API and Google Cloud Vision API.
3. Use the "flask run" command in a Python virtual environment in order to launch the Python API on the local machine
    a. Ensure necessary directories for storing image and JSON outputs from the script are initialized on the machine
4. Verify accessibility of the server, utilizing the "/health" endpoint.

Testing Procedure

1. Send requests to the Flask API through the URL with the start and end coordinates
2. Open the folder where the images are being stored to ensure the integration with Google Street View Static API retrieves images correctly.
3. Open the JSON file to verify the test the integration with Google Cloud Vision API for accurate text extraction from images

Measurable Criteria

The criteria for a successful run of our API endpoint and its associated output is as follows:

I. The Python API should prove accessible locally, verified via the health endpoint
II. The Python API should capture and store into a specified directory sets of images between the specified/supplied coordinates. These images should be in sets of 8, as they are taken every 45 degrees for an entire rotation.
III. The Python API should output a JSON formatted file containing the results of processing the images gathered between the two coordinated through Google Cloud Vision Text analysis
    A. For every image processed between the provided coordinates, the JSON file will have a distinct section detailing the text extracted from that specific image.