

## **Team 7**

Project Name: MapTak

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Repository: <https://bitbucket.org/cs307project/mapTak/>

## **Problem Statement**

Event, building, or property administrators need a streamlined way to mark points of interest in their event or building, as well as distribute that information to their customers.

## **Background Information**

### Background Information

Currently, there is no easy way to distribute digital versions of the old “paper maps” we see in fairgrounds, theme parks, buildings, or the like. We’re interested in offering event or building administrators a way to tag points of interest at their event/building, include metadata with those locations, like labels, then provide this data to users in an easy-to-use smartphone application. Additionally, using GPS locating, users can find approximately how far a point of interest is from them and the direction.

There are a few applications in this domain, but none which encompass all of the goals we are attempting to achieve. GPS Note and GPS Bookmarker, two applications available on smartphones today, allow you to bookmark locations on your phone and share them with SMS or email. Our solution would allow administrators to package this information to their users through a web-based API. The information in these apps is also totally stored on the users’ phone; we want to utilize the full power of the cloud to deliver this information to anyone who requests it and has the right to access it.

There is another app called Trimble Outdoors Navigator which allows users to pre-generate maps of locations these are going to visit, then print this information off or download it to their phones in the event they lose connection to the internet. However, this app is missing a key feature: the ability to share this information with clients or developers through an API. We will also be including metadata with the points of interest beyond just location, including time, labels, and possibly even things like temperature if the phone supports it.

Finally, many of the apps in this domain are very poorly designed. User experience is an important part in driving user adoption. We will put a large focus on designing a beautiful, stable application that users want to install and find appealing.

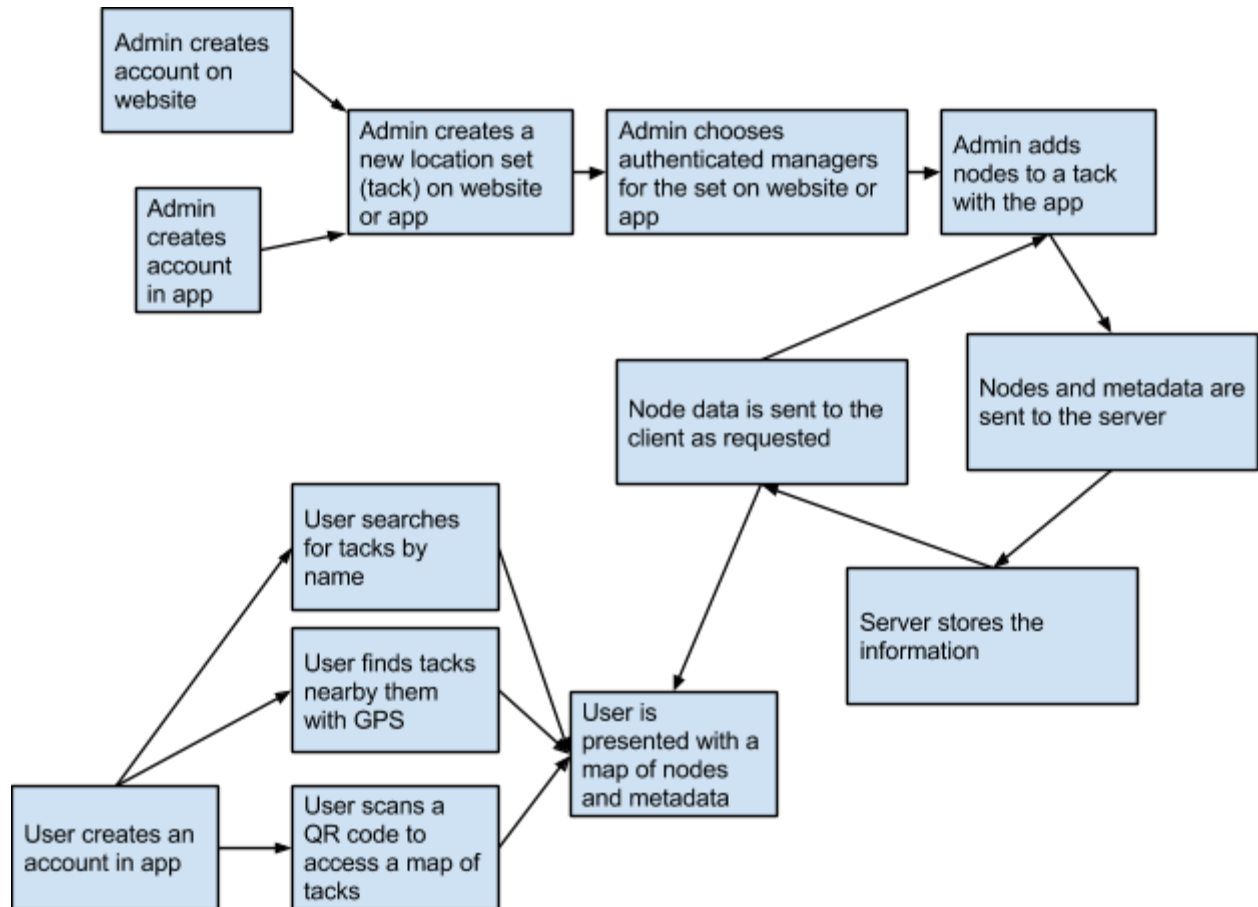
### Domain

Location and information services, event planning, building management

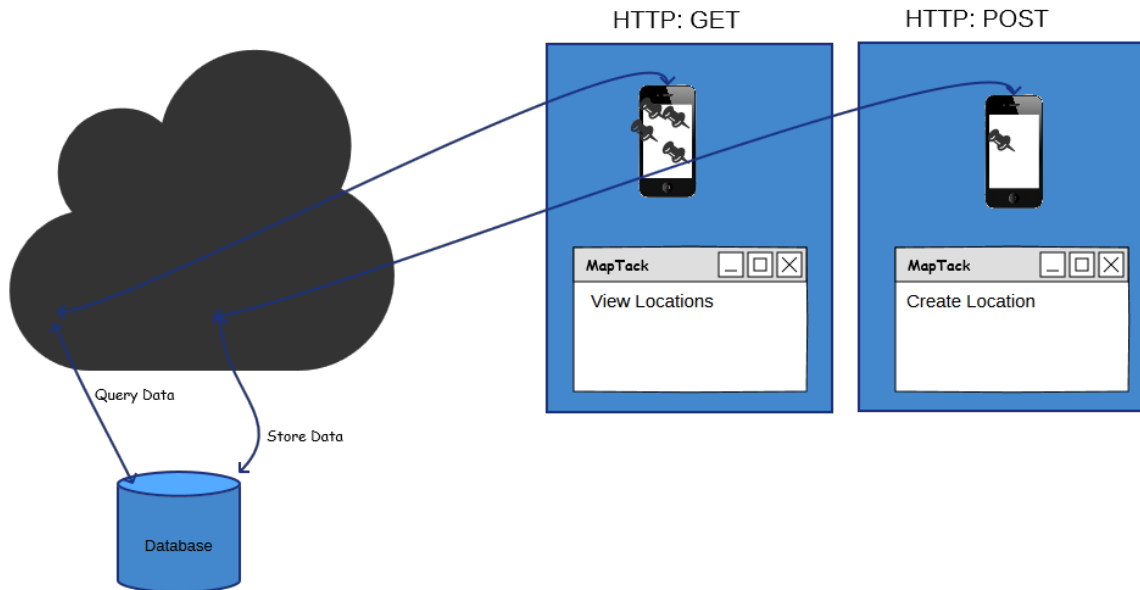
### Targeted Users

Event coordinators, building owners, town/city planners, event attendees, visitors, geocachers, developers

## System Model



## REST Architecture



### Interaction: Administrator Adding Managers

Administrator logs into web site. Then chooses whichever data set they want to add managers for. Once they hit the landing page for the Tak, they will click “Add Managers.” Then a popup box will appear where the administrator can invite other managers through email. The email will be set inviting the person to join the Tak.

### Interaction: User accesses a Tak

User enters a venue where the administrator has created a Tak. The user enters the MapTak user application and selects the “Scan QR Code” button. The user scans a QR code printed on a piece of paper or otherwise provided by the administrator. The application parses the QR code and extracts a unique key for the Tak. The app accesses the MapTak api and downloads public location data for that Tak. The app then parses that data and makes it available to the user through a mapping interface.

### Interaction: Administrator Creating a Tak

Administrator selects to create a Tak in the phone app. The Administrator stands where he/she wishes to place a location, then clicks a button to add a new location on the Tak. They can choose to add information about the location now, or come back later and add the info. After

selecting all the locations, the admin types in a name and description then publishes the Tak.

## Requirements

### 1. Must Be Done

#### a. Functional

- i. As an administrator, I would like to create location data sets (Taks) on my android phone.
- ii. As an administrator, I would like the ability to choose whether the Taks I create are public or private.
- iii. As an administrator, I would like to add locations to the Taks I create on my android phone.
- iv. As an administrator, I would like to view and modify the locations I have added on my android phone.
- v. As an administrator, I want to be able to correct location data from the web.
- vi. As an administrator, I want to be able to create location Taks from the web.
- vii. As an administrator, I want to be able to group together Taks under a label.
- viii. As an administrator, I would like to manage Taks I create through a web interface.
- ix. As a user, I would like to view Taks created by administrators on my android phone.
- x. As a user, I would like to be able to scan a QR code and have the Tak information automatically downloaded.
- xi. As a user, I would like to easily report problems with Taks to the administrator.
- xii. As a developer, I would like to have access to an authenticated API which allows me to access public or private Taks that administrators have created and use them in my application.
- xiii. As a user, I would like to search for locations on a Tak.
- xiv. Server:
  1. As a Administrator I want to be able to easily login.
  2. As a user I want to be able to easily login using my google account.
  3. As an administrator I want to be able to download all my data sets in a simple universal format.
  4. As as administrator I want to be able to create subgroups of my data without harming my existing data ( I want to be able to revert my changes).

#### b. Non-Functional

- i. As an administrator, I would like the entire system's communications and storage routines to be secure.
- ii. As an administrator, I would like the android app and website to be as

functional and user friendly as possible.

- iii. As a user, I would like the android app to be an app that I want to download and keep.
- iv. As an administrator, I would like the website to be mobile responsive.
- v. As a third party developer, I want the API to be well documented.
- vi. As an administrator, I want to make sure my data is never manipulated without my consent.
- vii. As a third party developer, I want the server to send data via http with a REST API.
- viii. As an administrator and user, I want the uptime of the service to be near 100%.
- ix. As an administrator and user, I would like the server to function well even when asked for many requests. It should perform efficiently when dealing with many requests from different users.

## 2. Will Be Done If Time Allows

### a. Functional

- i. As an administrator, I would like to choose sub-administrators who have access/modify privileges to my Taks.
- ii. As an administrator, I would like to include additional metadata with the locations I log, such as the time or temperature.
- iii. As a user, I would like the app to use my location and automatically present public Taks which have been created around me.
- iv. As an administrator, I would like to display notifications to users of my Taks.
- v. As an administrator, I would like to view how many users have accessed my Taks.
- vi. As a user, I would like to be able to suggest new locations to add to the Tak.
- vii. As an administrator, I would like to add a background image in place of the satellite imagery.
- viii. As an administrator, I would like to share my MapTaks via NFC and short URLs.
- ix. As an administrator, I would like to be able to feature my Taks when users are nearby.
- x. As a user, I would like to see the distance between my location and a Tak.
- xi. As a user, I would like to search for Taks by administrator name.

### b. Non-Functional

- i. As a user, I would also like an iPhone app with the same functionality.
- ii. As an administrator or user, I would like the Android app to be tablet-optimized.
- iii. As an administrator or user, I would like the android app and website to have some multilingual support.
- iv. As an administrator, I would like to easily embed my Taks on my website.