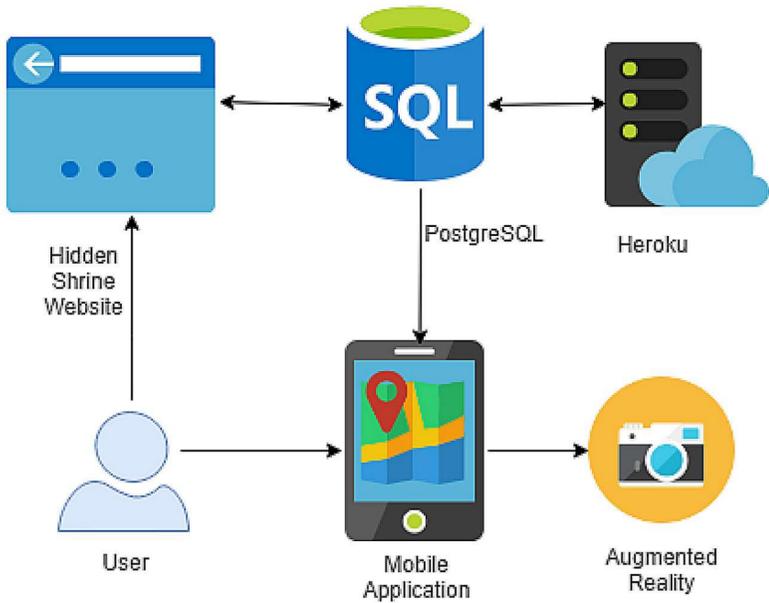




# Mapping and Narrating Shrines with Clustering & Augmented Reality

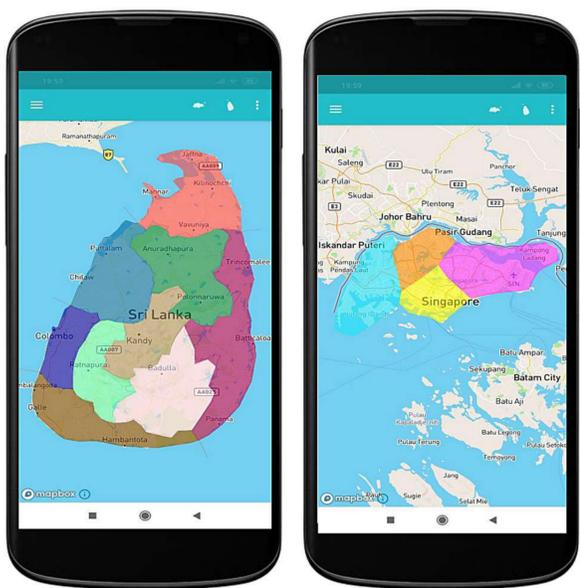
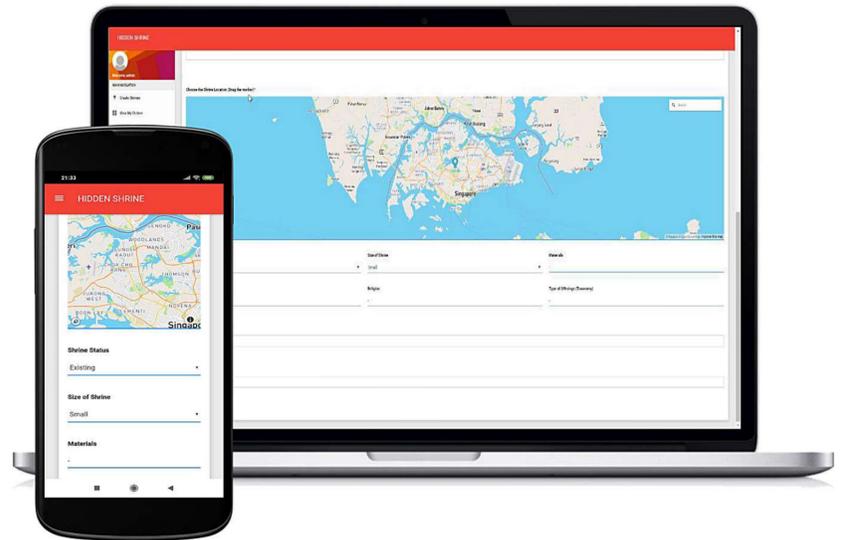


## System Overview

Our entire system architecture follows the client-server implementation. Our website, allows user to upload shrine information and images which will be stored in our database server, Heroku. The mobile client contains a map with clusters of shrine. Once user tap on any clusters, it will retrieve and download images and videos of shrines in the cluster. Once the images and videos are downloaded, user can utilize the augmented reality feature by pointing the camera at a shrine image and it will retrieve text information or videos related to it.

## Crowdsourcing

Through our website, we will crowdsource information and images about shrines from users. Locations of shrines and user will be captured intelligently with the use of geotagging, geolocation and geocoding. Images of shrines will be uploaded to Imgur, its image URL will then be retrieved and stored in our server. In addition, our websites supports progressive web app, users will be able to browse our website with an immersive native app experience.



## Map Clusters

With the use of clusters, it provides user with a visual and intuitive way to download shrines for offline use. User will simply tap on any of the clusters and it will download images and videos of shrines in that clusters. The clusters shown in the figure, is clustered by region, and is one of the many cluster visualisation options provided. We used clustering algorithm such as K-means and agglomerative (not shown in the figure) as well to visualise clusters.

## Augmented Reality

Our augmented reality feature provides user with a fun and interactive way to explore and learn more about shrines. With the use of ARCore & Sceneform SDK, users will be able to point their camera at any shrine images and it will automatically detect and display textual information or play videos related to the shrine depending on user's choice.

