

### Introduction / Background

Visitors/Tourists when visiting unfamiliar places face a lot of challenges finding their way to their destination and rely on the local people for the direction or hire a tourist guide for finding their destination. So there is a need for technology which helps tourists discover new places and quickly find the most popular sightseeing in a real-time mode using their mobile devices.



fig 1

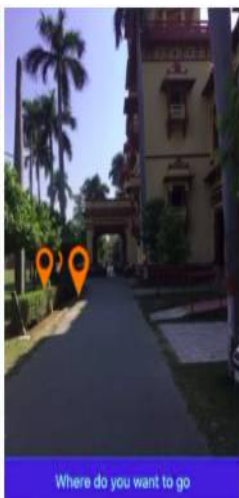


fig 2



fig 3

### Approach/ Method

#### Augmented Reality:

Augmented reality is an interactive experience where computer-generated objects such as 3D models, images, or videos can be superimposed and integrated into our physical environment.

#### Location-based Augmented reality:

Location-based AR uses concepts of augmented reality integrating it with the navigation which makes it more suitable for the problem we are solving.

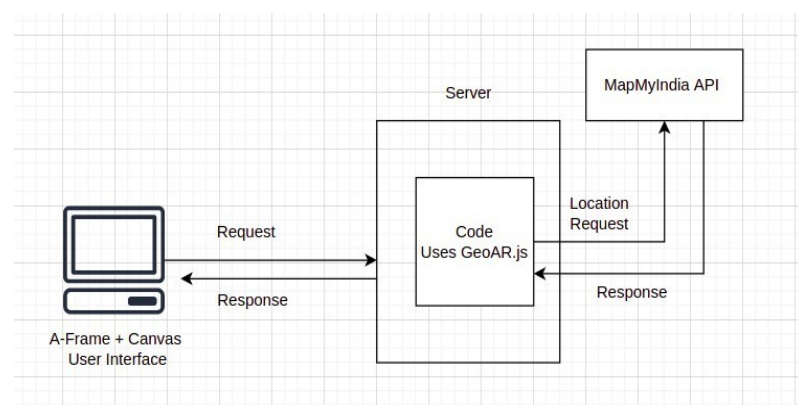
### Objective

To enable easy navigation for visitors during college fests by reducing the time taken to ask for directions and thereby improve their experience, Augnex(Location-based AR app) was built that uses real-world landmarks to display augmented directions to aid navigation in college premises during Technex, the techno-management fest of IIT Varanasi.

### Features of Application

1. The first being providing the path to destination with the help of 3D dots that appear on the screen on the basis of geo-coordinates of the user (refer Fig 2).
2. Secondly, a 3D cube is displayed on each crossroad showing which road leads to which location(refer Fig 3).

### System Architecture



### Result

Successfully developed a web application that can help visitors to navigate to their destination, covering approximately 500 acres of the area spanning varied landscapes and building arrangements. The proposed the solution is empirically found to be robust with mediocre computational demands.

### Future Work

1. Dynamically render the models and increase the area covered by the application along with the accuracy of the rendered model location.
2. Extending the features of the application so that it can be used in famous tourist places, museums, wildlife sanctuaries and so on.

### Conclusion

Human beings learn or understand quickly when they experience things visually. So we have implemented navigation using AR which could give them a visual experience and make their life easier when they got stuck in some unknown place.

### Reference

1. AR.js documentation
2. GeoAr.js GitHub Repository
3. Medium blog of GeoAr.js community

### Acknowledgement

We thank the Science and Technology Council, IIT (BHU) for providing us with all the necessary resources and infrastructure.