PID761 : Equanimous Technologies

ConstructAR

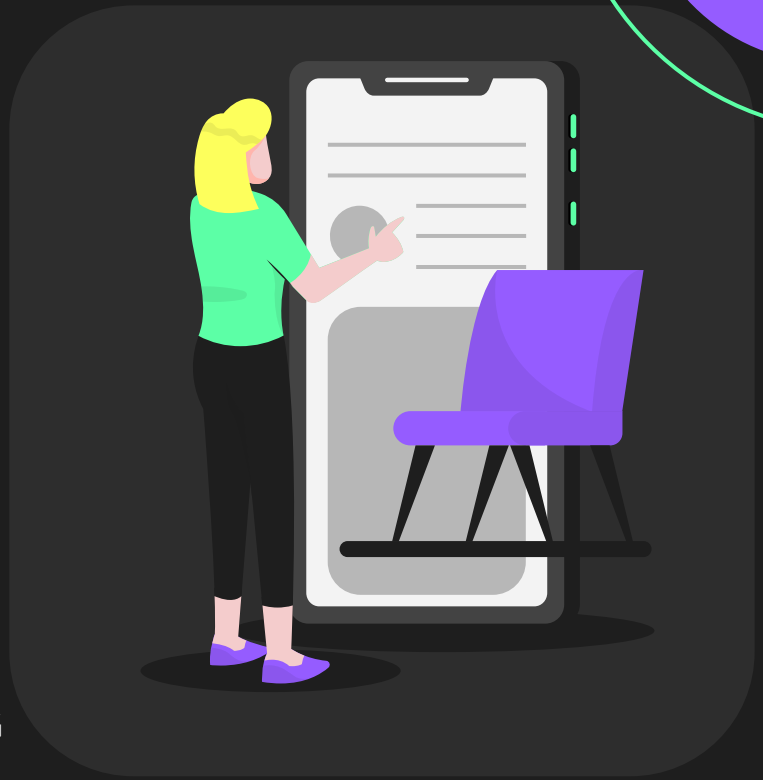
Augmented Reality App

By

FOURFAMERS

From

L.D. COLLEGE OF ENGINEERING
Ahmedabad, Gujarat



Abstract

The firms in construction industry could not sufficiently adapt the rapidly emerging information technologies in recent years into their corporate structures. Therefore, in an effort to further exploit the benefits of information technology (IT), integration of the experiences and backgrounds of construction industry and the advantages of IT, is one of the most open-ended fields for improvement in this industry. Utilization of IT in the construction sites will positively affect the efficiency, productivity, quality and health & safety issues in the construction sites thus the cost and completion time of the projects. Within this context, augmented reality technology, which brings a new perspective into IT, can be put into the service of construction industry. Augmented reality which has been designed to improve the services in many application domains such as industrial maintenance, real estate, can be defined in the simplest form as augmenting the real world with information from the virtual world.

Purpose The purpose of this paper is to facilitate the process of monitoring construction projects. Classic practice for construction progress tracking relies on paper reports, which entails a serious amount of manual data collection as well as the effort of imagining the actual progress from the paperwork. Design/methodology/approach This paper presents a new methodology for monitoring construction progress using smartphones. Augmented reality can be used to track and monitor project progress. Construction experts can track project progress using a variety of tools available on the market. When it comes to educating individuals how to operate complex equipment or heavy gear, AR can assist educators by offering life-like demos that allow personnel.

Agenda

01

Past Surveys

Existing or Past System Surveys

02

Approaches

Approaches to solve Problem

03

Proposition

Our Proposed System

04

Outcome

Possible Outcomes

Agenda

05

Tools Used

Tools and Technologies used and needed

06

Chellanges

Limitations and Challenges to be faced

07

Future Scope

Conclusion and Future Scope

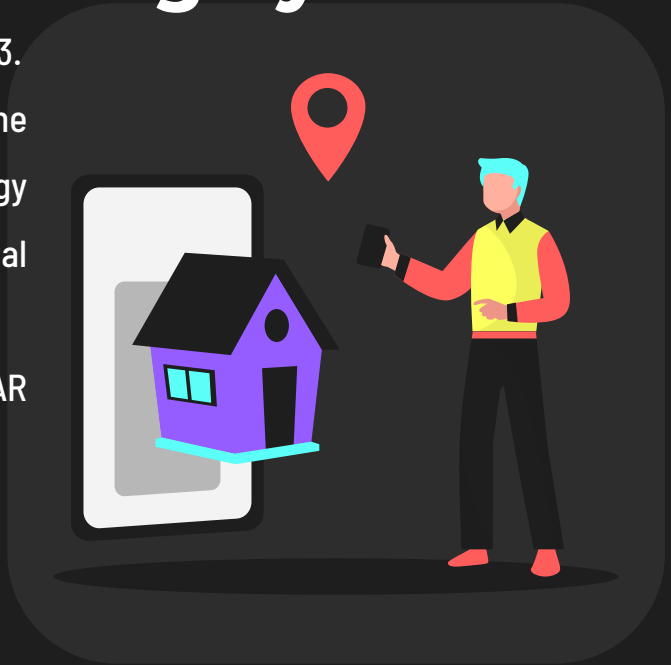
01

Past Surveys

Surveys and Stats of Existing Systems

Statistics on AR over Existing System

- The AR market is expected to see a **77**% CAGR from 2019-2023.
- AR and VR technology is expected to see strong growth in the AEC industry over the next 5 to 10 years as AR technology matures and construction firms go through digital transformations.
- **61%** of consumers say they prefer retailers with AR experiences.
- **$51 B** is the estimated AR Market value by 2024.
- Over **1 B** people worldwide use AR.
- **70%** of consumers 16 to 44 years old are aware of AR.
- **40%** higher conversion rates with AR.



02

Approaches

Approaches to solve Problem

Solution

3D Model

Project Planning

Project Modification

Augmented Measurement

Safety Training

Positioning, Interaction

03

Proposition

Our Proposed System for Problem & Innovation

Idea and Solution:

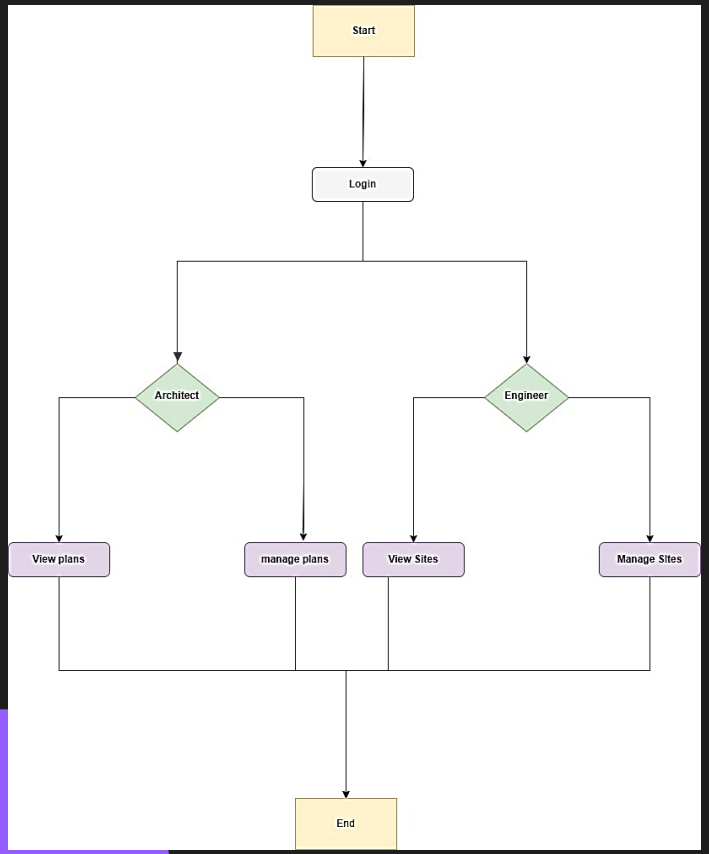
The proposal is to develop a mobile application that runs on the capable Android platform to provide a new way of understanding every step of building construction, from the initial state to the final state, in order to increase construction efficiency, better understand construction plans, and ensure that all factors are considered (builders, architects, owner project, etc.).

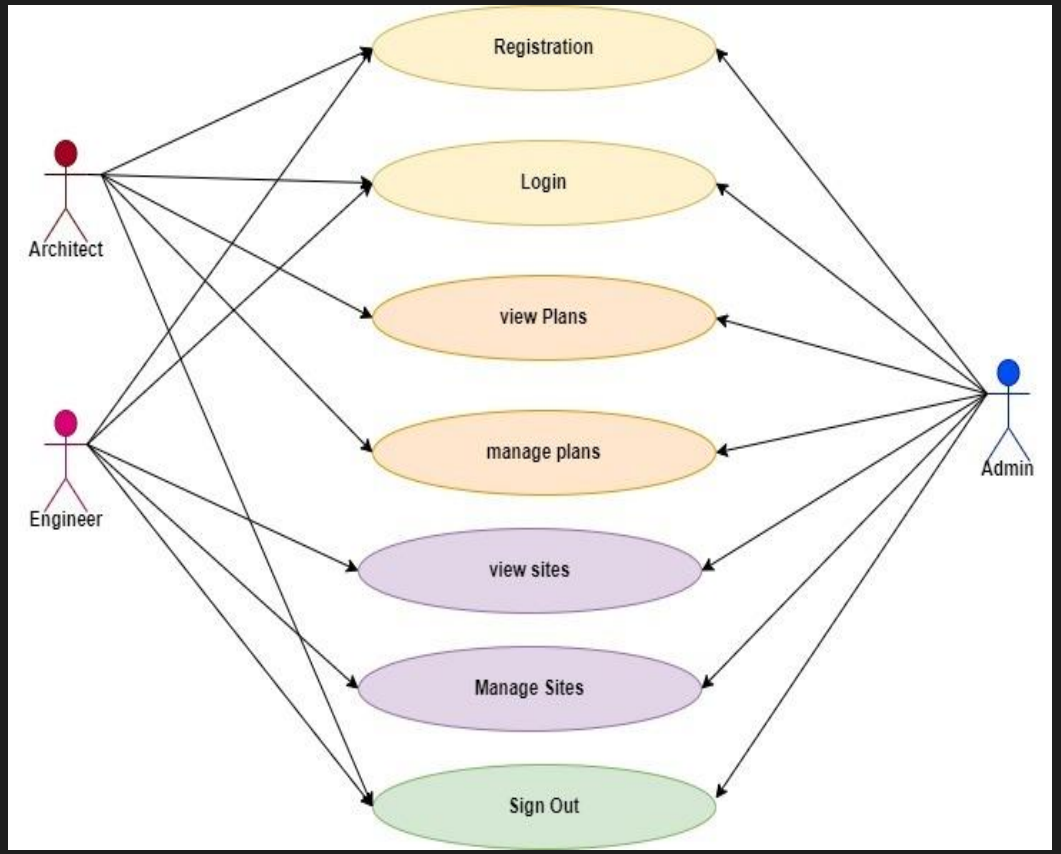
The application will aid in the understanding of the building project prior to the start of construction work, and will be beneficial to both construction experts and non-experts in the field.

The software consists of five parts, each of which performs a particular function and may be used by anyone. New buildings, their size and scale, their impact on the site and the environment, and other information that is impossible to examine throughout the design process can all be presented using an Augmented Reality application.

As a result, the new visual tools have the potential to improve the quality of future construction projects by involving the entire community in picking the best alternative. It's also worth emphasizing that the viewing mode will be based on either real-time change created by overlapping virtual objects or a virtual image over which virtual items will be overlaid.

PROCESS FLOW & USECASE DIAGRAM





Some Snaps (for Site) :

Home Page

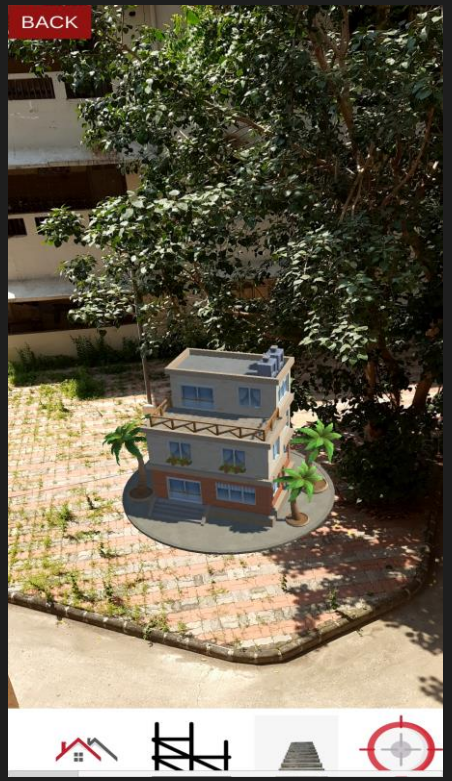
Site Page

Place model on/off by pressing target button.

This is just demo working app for Ideation Stage of GJiHUB Hackathon

Place model on/off by pressing target button.

Can enable/disable side Trees By pressing tree button



Can resize 3D model by just Pinching with two finger

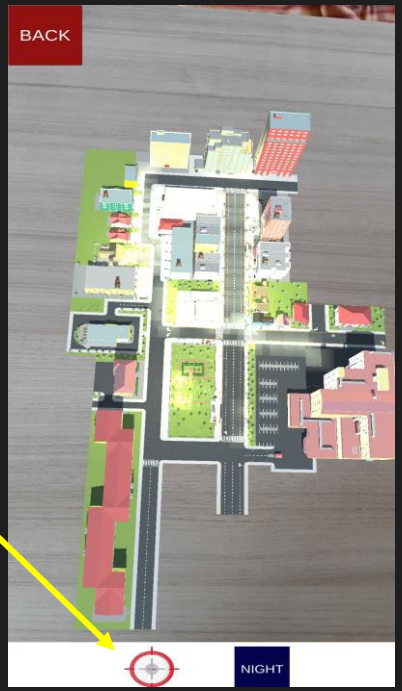
Can rotate 3D model by just Holding and moving with two finger

This is just demo working app for Ideation Stage of GJiHUB Hackathon

Some Snaps (for Plans) :

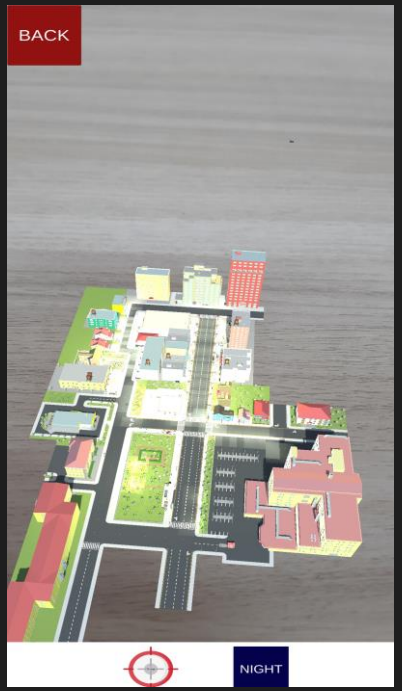
Home Page

Place model on/off by pressing target button.



Plan Page

Place model on/off by pressing target button.



Can rotate/scale 3D model by just holding & moving with two finger. Also zoom in/out.

Can enable/disable sunlight by pressing night view button.

04

Outcomes

Possible Growth and Outcomes

AUGMENTED VIEW OF PLANS FOR OWNERS & ENGINEERS

TRACKING THE PROJECT PROGRESS

SKILLS TRAINING FOR WORKERS

TRACING THE WORK DONE

DECISIONS TO MODIFY THE CONSTRUCTION

SAFE EXPERIMENTALS FOR PLANS

05

TOOLS

Technologies and Tools been used

Unity 3D

Scripting

Blender

ARcore

Firebase

Android Studio

06

Chellanges

Limitations and Challenges to be faced

File size

Database to store & process big files

Device Compatibility

Devices having support for ARcore and ARkit

07

Future Scope

Future Scope and Conclusions

DYNAMIC

Dynamic Realtime High Resolution Assets from cloud

AI BOT

AI bot for training of workers & mansions in AR

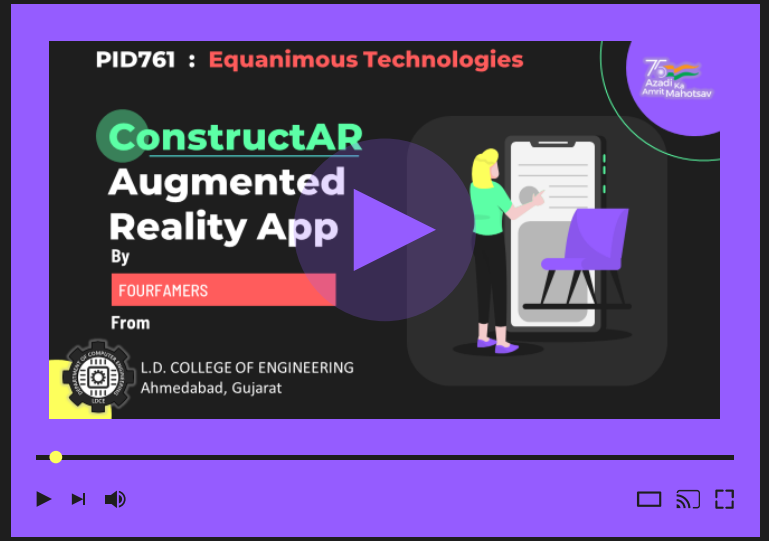
NOTES

Workers can shares notes with mates

Our Team

NEERAJ VERMA	STUDENT – IT (MCA)
DEVVRAT SHUKLA	STUDENT – IT (MCA)
CHIRAG KALENA	STUDENT – IT (MCA)
HEVIL CHAUDHARI	STUDENT – IT (BE)
PROF. NIRJARI DESAI	MENTOR – IT (MCA)

THANKS YOU



FOR SSIP GUJARAT HACKATHON