

A Mini- Project Report
on
Track and trace system
Using Narrow Field Communication

Submitted to the
Pune Institute of Computer Technology, Pune
In partial fulfillment for the award of the Degree of
Bachelor of Engineering
in
Information Technology
by

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CERTIFICATE

This is to certify that the project report entitled

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is a bonafide work carried out by them under the supervision of Prof. R. R.Chhajed and it is approved for the partial fulfillment of the requirement of **Computer Laboratory -X** for the award of the Degree of Bachelor of Engineering (Information Technology)

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Place: Pune

Date : 27/05/2021

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Ayan Gadpal

Devashish Prasad

ABSTRACT

In industry, there are many assets that are produced at the factory and delivered to the customers. These assets need to come back at the factory. A classic example for this use case is Oxygen Cylinder refilling. In this project, we implement a track and trace system that will enable the factory owners to track their assets using NFC tags. The system is built using an android smart phone based app. This app has dual functionality. It can be used by the factory owners to track their assets and enable truck drivers (people who deliver the assets) to easily update the status of the assets. At the truck side, the app also has the functionality of the automatic location based unlocking system. Truck drivers are responsible to scan the asset NFC tags and update the system in real time. The administrator of the app or the factory side app also has analytical and summarization dashboards. The look and feel of the app is stellar and very attractive. The system has real time cloud connectivity. We have server side scripts integrated with databases.

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1. Introduction

Asset Tracking Using NFC (Near field communication) is established in the market as a mainstream. The number of cell phones with NFC technology is rising quickly. However, it works out of sight so you may not know what it is. No worries, we're here to clarify the potential uses for NFC and how it is different from other technologies.

In spite of the fact that it's principally being utilized for making payments (as of now), with many popular platforms such as Google Pay and Apple Pay, enabling you to leave the wallet or handbag at home. But, NFC has far more capability than this. It can also be used for information sharing via smartphone & all you have to do is tap.

Choosing the right technology for a specific task is very important. Especially when you have the technology available such as RFID, QR code, Bluetooth & NFC. So, let's start comparing all of them with NFC. When it comes to asset tracking, RFID is not the only best option. NFC is also another available option. Radiofrequency identification (RFID) & near-field communication (NFC) are both similar. RFID frequency ranges from small, high & ultra-high & NFC frequency is high

We can also say that NFC is the advanced version of RFID. They both use electromagnetic induction for transmitting the data. So, what is the difference between RFID and NFC? RFID contains a tag, an antenna & a reader NFC device is able to act both as a reader and as a tag. RFID's main purpose is Asset Tracking on the other hand NFC can be used in tracking, information sharing, making a payment with just a tap. Overall, NFC expands upon the models of High-frequency RFID and transforms the constraints of its working recurrence into a remarkable component of near-field communication.

2. Scope

- To build an android app that can be used to track and trace the objects of any factory using the NFC module of the phone.
- Use NFC and GPS location technologies to reach an assured way of tracking the valuable assets.
- Build seamlessly integrated system that has cloud and database connectivity
- Build a very attractive UI using material design and provide quick summarization reports

3. Objective

- Use NFC and GPS area advances to arrive at a guaranteed method of following the important resources.
- Build consistently coordinated framework that has cloud and information base network
- To fabricate an android application that can be utilized to track and follow the objects of any industrial facility utilizing the NFC module of the telephone.
- Build an alluring UI utilizing material plan and give fast synopsis reports

4. System Architecture

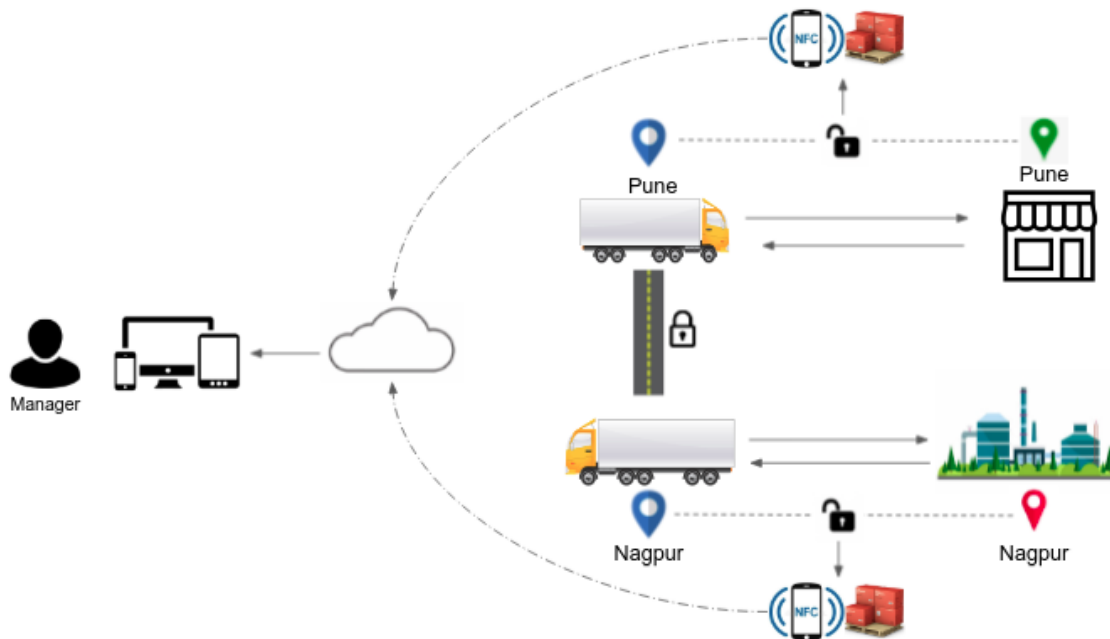


Figure 4.1 : Architecture

```
devyashish_ttdb location_tab
location : varchar(100)
address : varchar(500)
latitude : float(10,6)
longitude : float(10,6)
active : decimal(1,0)
loc_group : enum('Factory','City','Rest Of Town')
```

```
devashish_ttdb asset_tab
```

ASS_NAME	: varchar(50)
ASS_TAG	: varchar(20)
ASS_ACTIVE	: decimal(1,0)
ASS_STATUS	: decimal(1,0)
ASS_TYPE	: enum('k30','k50','CO2','Dispenser')
ASS_STOCK	: decimal(1,0)
LONGITUDE	: float(10,6)
LATITUDE	: float(10,6)

```
devashish_ttdb user_tab
MOBILE : varchar(10)
USER_FNAME : varchar(50)
USER_LNAME : varchar(50)
USER_TYPE : enum('ADMIN','USER')
USER_PWD : text
ACTIVE : decimal(1,0)
GRANT_UM : decimal(1,0)
GRANT_LM : decimal(1,0)
GRANT_KM : decimal(1,0)
GRANT_TM : decimal(1,0)
GRANT_RM : decimal(1,0)
DEPT : enum('Manufacturing','Dispatch','Sales','Head Office')
TRUCK : varchar(20)
```

```

v devashish_ttdb asset_tran_tab
├─ t_rec_id : int(10) unsigned
├─ t_datetime : datetime
├─ t_type : decimal(1,0)
├─ t_asset_tag : varchar(20)
├─ t_asset_name : varchar(50)
├─ t_loc_frm_scan_type : decimal(1,0)
├─ t_latitude : float(10,6)
├─ t_longitude : float(10,6)
├─ t_user_mobile : decimal(10,0)
├─ t_manual_correction : decimal(1,0)
├─ t_manual_cor_datetime : datetime
├─ t_keg_status : decimal(1,0)
└─ t_trans_mn : varchar(20)

```

```
devashish_tddb trans_tab
TRANS_RN : varchar(20)
TRANS_NAME : varchar(50)
TRANS_TYPE : decimal(1,0)
ACTIVE : decimal(1,0)
```

Figure 4.2 : Database Schema

5. Snapshots/Result

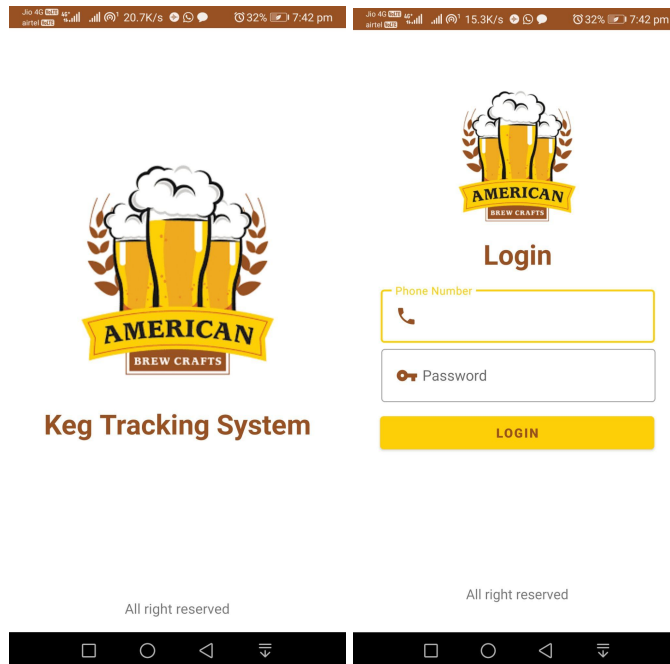
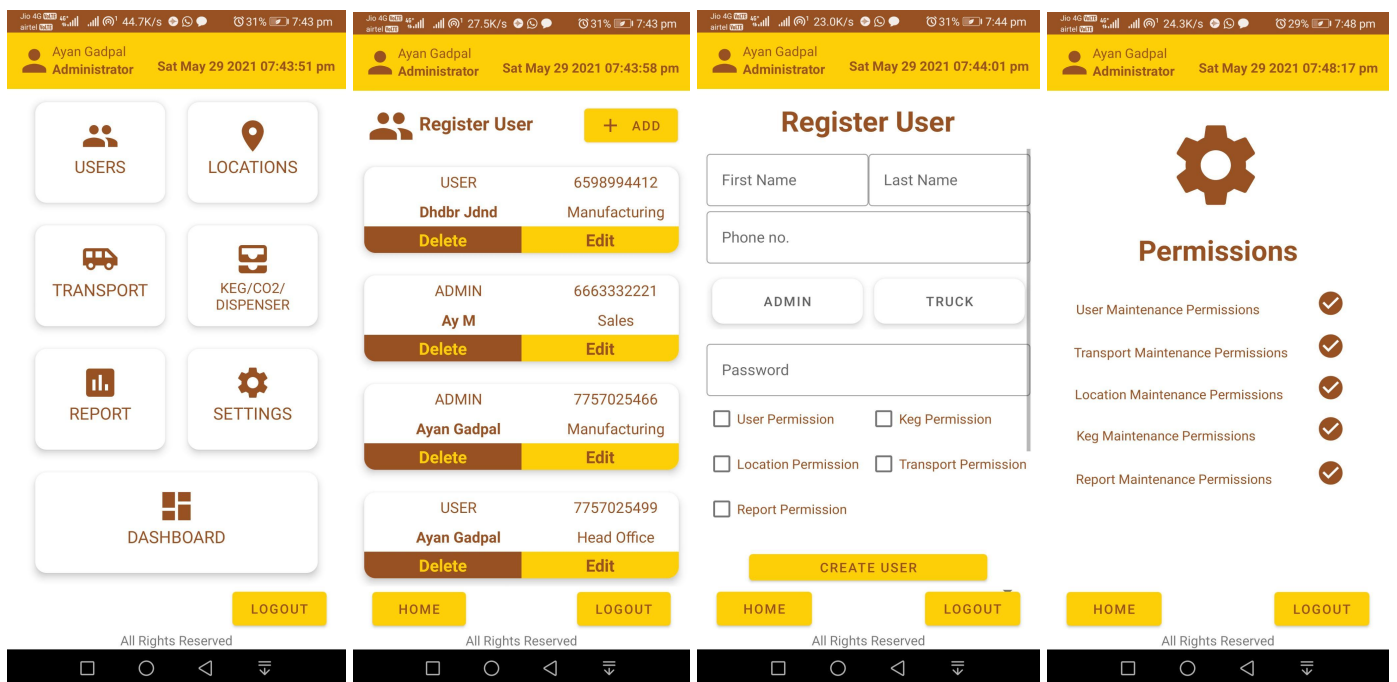


Figure 4.3 : Home



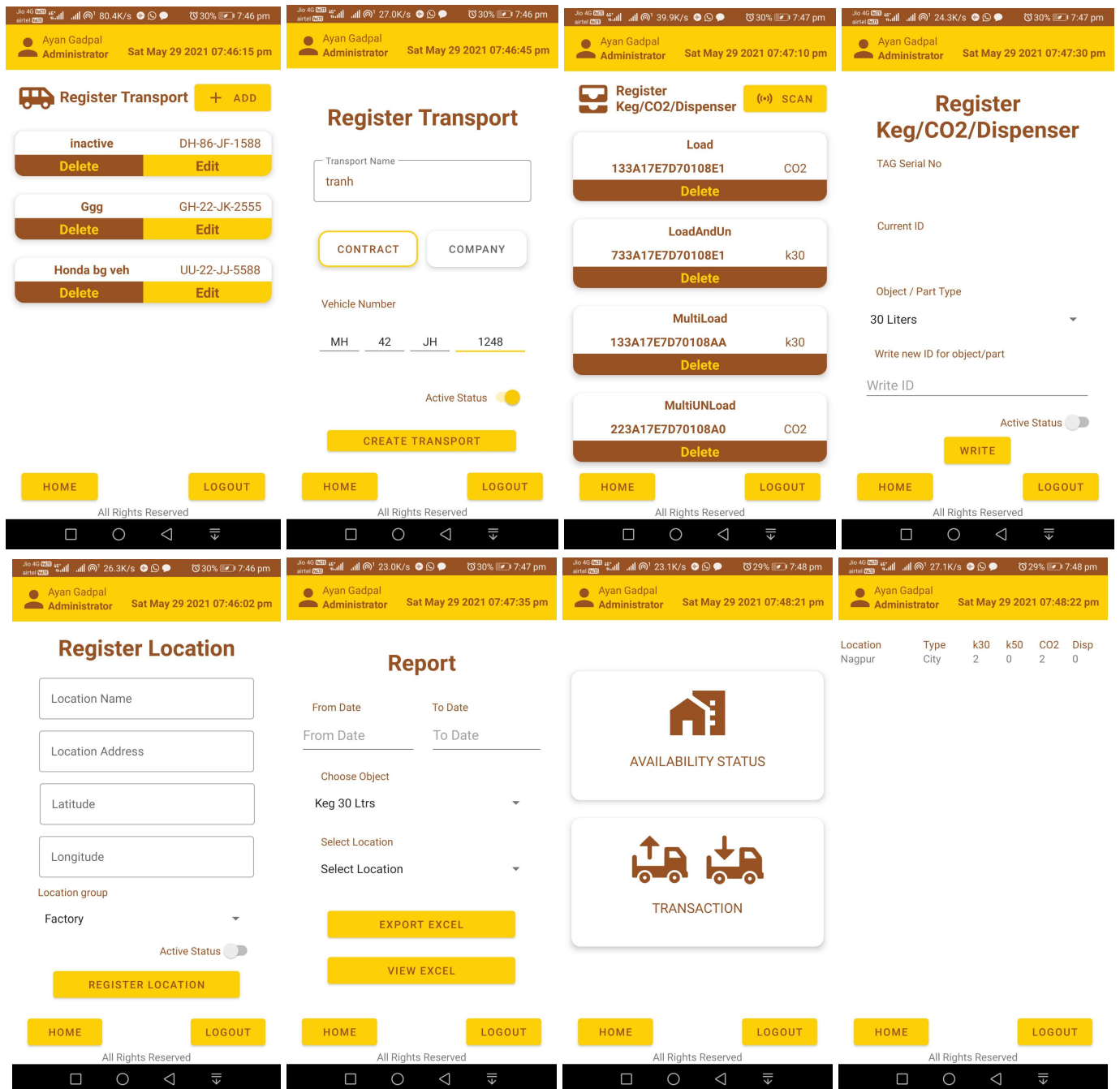


Figure 4.4 : Admin Side

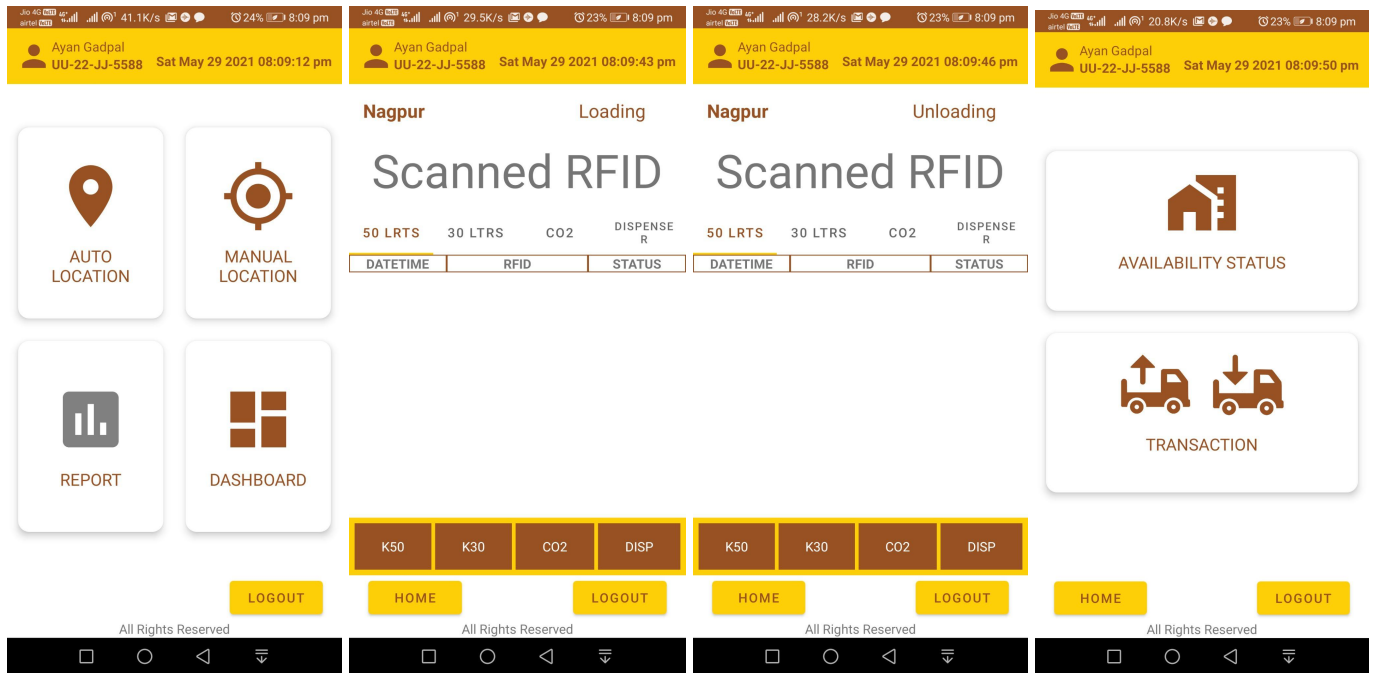


Figure 4.5 : Truck Driver Side

6. Conclusion and Future Scope

All of the above-mentioned technologies have their own advantages and disadvantages. So, if you choose RFID, Bluetooth, QR Code, or NFC technology we can very well track the assets. Then only you will be able to choose your best technology stack for server side deployment.

7. References

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