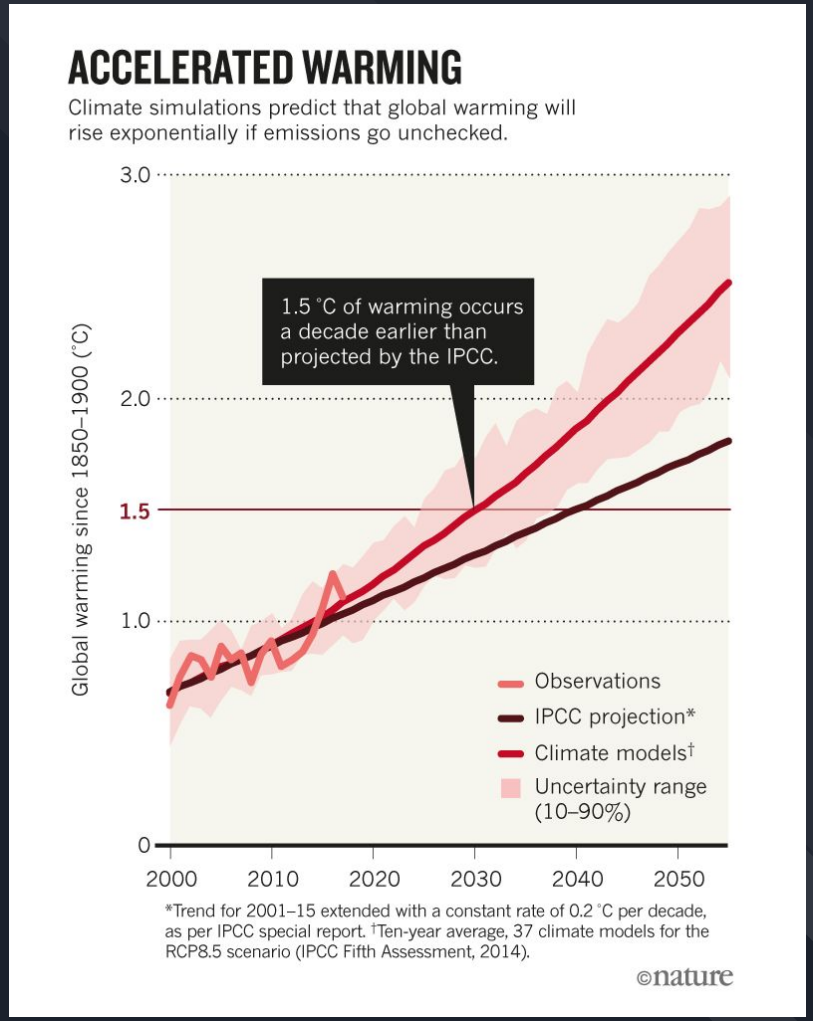
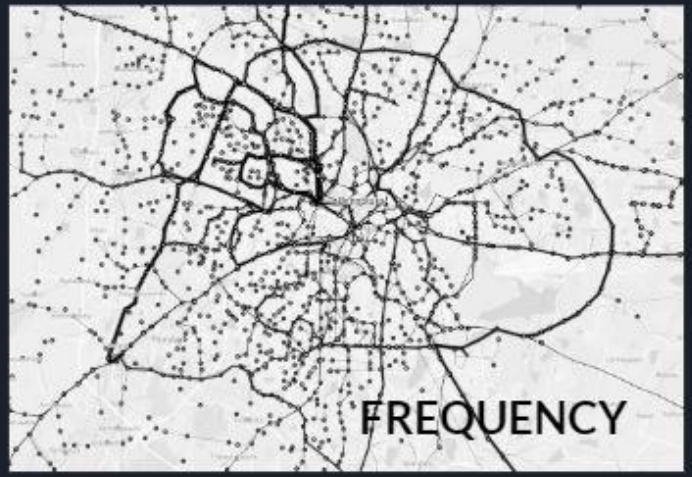
# SMART BUSES

*REDESIGNING THE EXPERIENCE OF PUBLIC TRANSIT*

# #FACT

Global Warming and Climate Change is something we are all aware of. Given that it is happening at such a fast rate, using public transport is not a choice but a necessity.




FREQUENCY

DIRECTION

COVERAGE

# #IDEA_MOTIVATION

**Suppose you have an important presentation in another 2 hours and you have to reach the destination on time and in a condition to present.**

**Would you wait at the bus stop for an uncertain bus with a xyz number to come? If yes, how long?**
**Would you get into the bus if it is over-crowded? Or would you wait for the next bus?**
**On a day when you are supposed to have a peaceful mind, would you have yourself frustrated over the inconvenient payment methods?**

**With all the happenings in and around you for an hour long travel, you are sure to lose your cool.**

# Introduction

In spite of the existing public transports being quite frequent, cheap and well maintained, people still prefer cabs to buses.

Reasons are multiple.

1. Untimeliness/Lack of knowledge of timings
2. Seat availability/Crowd
3. Inconvenient payment methods
4. Lack of recreational options (Boredom)
5. Time Utilization
6. Security of people and their properties

# #PROPOSAL

We propose to address each of these common problems that one faces in buses through the use of technology, such that one and all, from rich to poor is motivated to use these public transports and have a wonderful experience.

# #OUR SOLUTION

An app with the following features

1. TRACKING BUSES

2. CROWD ESTIMATION AND SEAT AVAILABILITY PREDICTION

3. SMART PAYMENTS

4. INFORMATION AUDIOBOOK

5. NETWORKING FEATURES

6. SECURITY FEATURES

# #DETAILED SOLUTION

# TRACKING

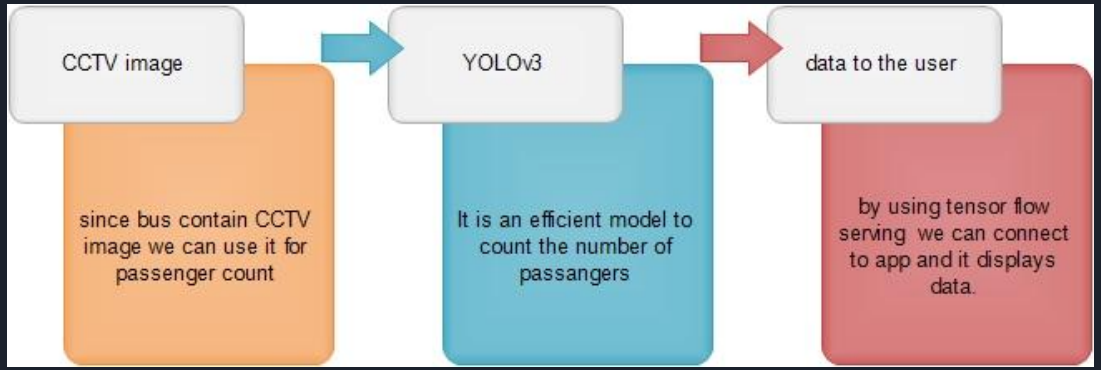
1. Live Tracking and predicted timings of all the buses

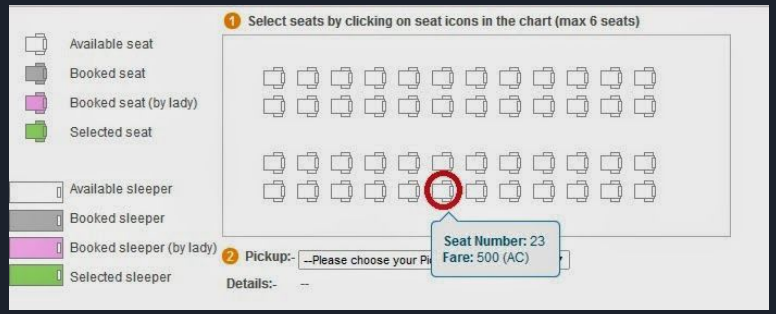
2. Fastest and best routes from any source to any destination, live and predicted

3. Important notifications to inform any sudden change in timings due to unpredicted weather and the like

# CROWD ESTIMATION AND SEAT AVAILABILITY

ESTIMATING CROWD THROUGH IMAGE PROCESSING



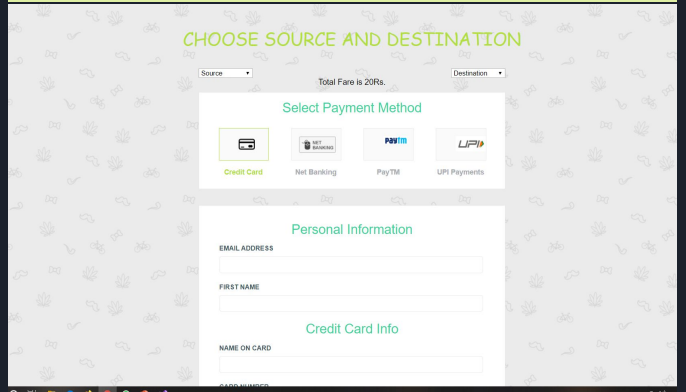




GETTING THE EXACT SEAT OCCUPANCY LAYOUT THROUGH PROXIMITY SENSORS

# SMART PAYMENTS

We propose use of captive portal which loads on connecting to the Wi-Fi system present in the bus. The portal redirects to a payment website which is hosted locally, here the user has to select source and destination and after successful payment, a  QR Code is generated which can be shown to the conductors at exit.

Separate application to be made for conductors to verify the QR.



# INFORMATION AUDIOBOOK

Historical and other relevant information in the form of audio and blogs about nearby tourist places and happening events based on the current location of the user.

# NETWORKING

Time utilization is very important especially in busy working individuals.

A social network limited only to the bus where the users can disclose information according to their comforts and once they find someone with similar interests, they can use the time to exchange ideas and network.

# SECURITY

Installation of cameras and using the same with smart cards allows keeping track of any kind of security issues related to people and their property.

1. Any kind of theft can be easily traced and the thief identified.

2. In case of any eve-teasing or morally questionable behavior, one can send SOS of various levels.

# #BUSINESS PROPOSITION

01 'All buses in India will switch to electric in next 2 years.' -Nitin Gadkari

02 Large Market implies larger outreach, more popularity and more revenue

03 One Time Investment

04 Saves 7300 minutes per person per annum

05 Boosts digital economy

06 A step towards a better environment

# #IMPACT

**GENERAL PUBLIC**

1. It can make journey hassle free
2. The number of people using public transport increases
3. A cleaner environment for future generations
4. Cost effective

**APP MARKET**

1.First of its kind
2. App becomes popular since it is making journey wrangle free and they can invest in more businesses.

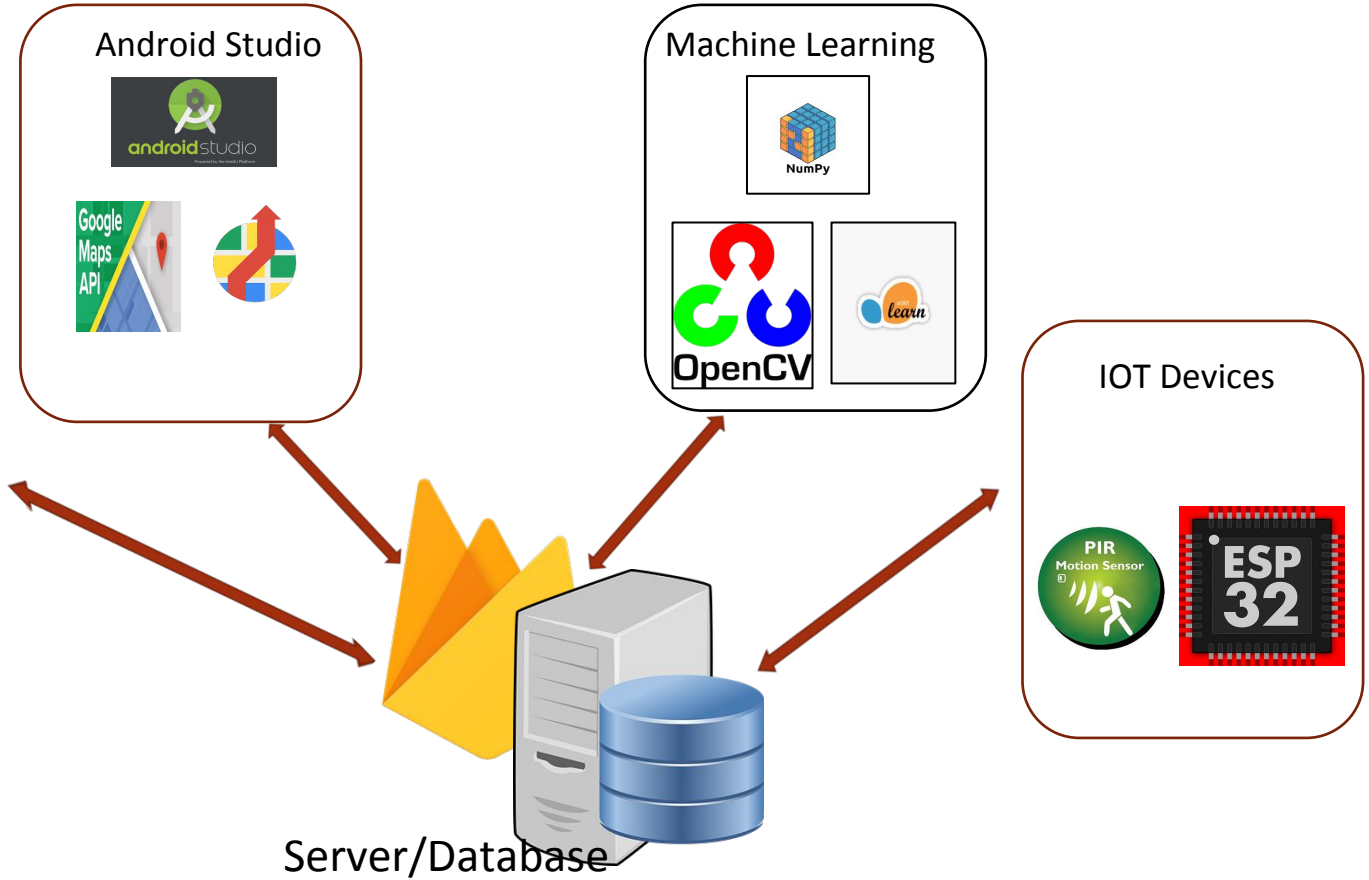
**BUS CREW**

It reduces the work pressure on the bus staff due to proposed digital methods

**GOVERNMENT /RTC**

1.Promotes digital economy
2.IT helps in designing new principles and reduce pollution
3.The command center gets data which they can use for various purposes.
4.Increase in revenue

# Tech Stack


Android Studio
android studio
Google Maps API
Machine Learning
NumPy
OpenCV
learn
Web Dev.
HTML
CSS
JS
jQuery
IOT Devices
PIR Motion Sensor
ESP 32
Server/Database

## Strength

- Encourages usage of public transport.
- It moves in a direction of Smart Cities, which is the next big step.
- It saves the environment.
- It is the best solution for all the associated problems.

## Threat

- Privacy in networking with strangers is an important aspect that can be seen as a threat only if people are not cautious.

# SWOT

analysis

## Opportunity

- Data collected can be used for various kinds of studies and for making further improvements in existing policies and assets that would make the lives of the people easier.

## Weakness

- The one-time installation of cameras in the buses and WiFi will be expensive.

**Towards a better bus experience and a better environment for us and our future generations...**
**THANK YOU**