

# Real Time Intelligent City Bus Management System

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**Abstract** - The efficiency of the operations of the bus system in metropolitan cities affected by many reasons for example traffic congestion, unexpected delays, randomness in passenger demand, irregular vehicle dispatching times takes place and as a result of which the schedule of the passengers are affected and they inevitably have to wait for the arrival of their respective bus. To solve the passenger inconvenience and to make bus operation system more efficient, the present paper describes a real time and intelligent way of bus management in metropolitan cities (RTIBMS). The RTIBMS system at least comprises of a traffic control center with a map of all traffic routes and real time animation of buses on it. A cellular mobile communication system which is connected to in-vehicular terminals by GPS and which are connected to each other via a wireless communication network. The whole system can also be monitored by passenger via their smart phone through relevant mobile application.

**Key Words:** Traffic Management System, RTIBMS, Real time traffic, GPS Modules, Android, ios based Bus application.

## 1. INTRODUCTION

City Bus systems provide a versatile form of public transportation with the flexibility to serve a variety of access needs and an unlimited range of locations throughout a metropolitan area hence it is the essential and most important mean of transport system but at present it is frustrating to almost all passenger in every city of India. There are many reasons. Bus stops are too far away. Buses don't come often enough. Passengers have to wait at bus stops for long time and even there is no surety about the arrival of that buses. It takes too long to reach required destination by bus. And it is always unsafe to travel by these buses. Many people lack the knowledge of how to use bus systems, including whether they will be able to use the service, how to plan journeys using the bus network, how to find the information they need to make bus journeys, and what accessibility features will be available for a given service. Beside that there is a transport inadequacy, i.e. during peak hours, there are not enough transportation vehicles available, which results in overcrowded vehicles and discomfort for passengers. Bus Bunching- In public transport bus bunching refers to a group of two or more transit

vehicles along the same route which are scheduled to be evenly spaced, running in the same location at the same time. Bus bunching may be deliberately caused by bus drivers, so that the bus ahead of them picks up more passengers and decreases their own workload. City bus corporations are buried under big debts and is struggling to come out from losses due to traditional inefficient bus management system. At the same time these inefficiencies disappointed almost all passengers and which is also the reason to rise the graph of private web and real time based rental car provider companies in many metro cities. By using RTIBMS System such city bus corporations can make handsome profit and at the same time they can provide high quality services to passenger by applying fair and reasonable charges.

## 2. OVERVIEW OF THE PROPOSED SYSTEM

### 2.1 Problem Statement

To design a real time intelligent bus management system for operator as well as users. Use of centralized server to share the real time positions of all routes and buses travelling on each and every route. Monitoring of desired bus for passenger through smart phone application.

### 3.2 Architecture of Proposed System

Proposed system consists of three modules: -

- Admin Module
- Driver Module
- User Module

#### Admin Module-

The main task of admin module is to upload all route map of said city along with buses travelling on each and every route of the city. There is also real time GPS transmission system enabled in admin module, It will also have a display system where real time animation of buses running on specified route is displayed. This animated display helps admin to take various decisions during operation of city buses. Admin module can

receive real time data from buses as well as request from passengers.

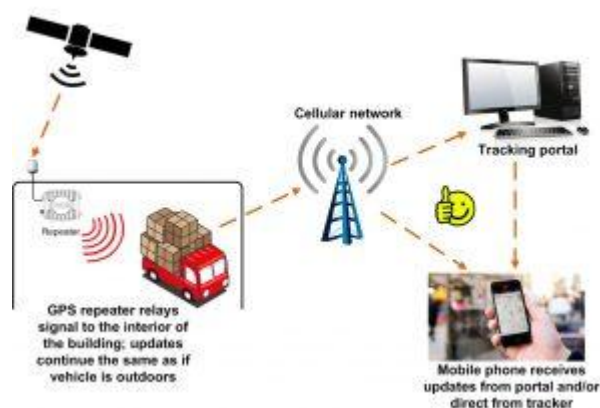
### Driver Module-

In driver module, Bus is enabled with GPS device so that its real time information will transmit to admin module. At the same time bus driver have small display unit where map upcoming stop will be displayed as well as instruction from admin module will be flashed out. There will also be a speaker in that system where admin can deliver verbal instructions to driver and at the same time conductor will also have digital ticketing system which will inform admin module about the passenger incoming and outgoing.

### User Module-

All the passengers travelling by the city bus will be the part of this user module. User module consist of smart phone application as well as web-based system where they can request various information e.g. upcoming bus/vacancy in that bus and information of probable routes to their destination and buses running on that route in specified time and journey time.

## 3. WORKFLOW OF THE SYSTEM



## 4. CONCLUSION

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