Literature Survey on Maharashtra State Transport Buses and RFID

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Abstract: In this paper, we are representing the literature survey on Maharashtra State Transport Buses and RFID. Most of the part of Maharashtra State is covered by Maharashtra State Transport Buses. It has been serving more than 70 lacks passengers daily. There is a very wide network of M.S.R.T.C. across Maharashtra. But on the other side M.S.R.T.C. is facing many problems like low load factor, high bus staff ratio and many other. Radio Frequency Identification (RFID) is one of the emerging technologies which can be used for vehicle tracking and for some other purposes. This paper deals with some basic information about RFID and problems faced by passengers travelling by State Transport buses.

1. Introduction

The Maharashtra State Transport Corporation is established by State Government of Maharashtra as provision in Section 3 of RTC Act 1950.The area covered by the scheme is the entire area of the State of Maharashtra [4]. At present, every village is attached to other by ST buses. Following table shows the details of the buses owned by M.S.R.T.C.

Table 1: Details of buses of M.S.R.T.C.

Total Buses	15,500
Simple Buses	14,022
City Buses	651
Semi Comfortable	544
Mini Buses	199
Deluxe Buses	48
Air conditioned	26
Midi	10

Another table shows details about M.S.R.T.C. offices

Table 2: M.S.R.T.C. Offices

Central Office	1
Regional Offices	6
Central workshops	3
Central education centre	1
Printing Press	1

Vibhagiya Karyalaya	30
Agaare	247
Bus Stops	570
Margastha Nivare	4000

Now let us consider about the problems faced by M.S.R.T.C.

2. Problems in front of the M.S.R.T.C.:

M.S.R.T.C. has been providing services to more than 70 lacks passengers daily across Maharashtra [5]. But M.S.R.T.C. has been facing various problems in its services to survive i.e. low load factor, high staff ratio, and high rate of accident and break down. Besides these problems few other problems like that high tax burden, increasing prices of spear parts, competition of private sector and lower satisfaction of passenger [5].

Here we only consider problems related to the passengers. There are various problems like late arrival and departure of the buses, poor management for passengers and many more. Following table shows details about the passengers' problems regarding M.S.R.T.C. Kolhapur division:

Table 2: Passengers Satisfaction

Now let us consider about Radio Frequency Identification (RFID):

It describes any system of identification wherein an electronic device that uses radio frequency or magnetic field variations to communicate with tagged items.

There are three basic components of RFID namely:

1. **RFID Reader:** Sends an electromagnetic wave which carries a signal to identify objects. Then, the reader receives the information returned back by these objects.

2. **RFID Tag:** Attached to these objects, reacts to receiving the signal sent by the reader in order to forwarding to it the requested information.

3. **A Computer Database:** Stores and processes information collected by the reader.

3. Related Work

There have been many projects developed regarding monitoring buses in traffic. These projects had used either Radio Frequency Identification (RFID) or Global Positioning System (GPS). Such projects are giving intelligent monitoring of the buses in traffic.

4. Our Approach

In our approach we are developing a system which will use RFID for monitoring the State Transport buses. RFID will give arrival and departure timings of bus to the respective depot. So, depot will not have to maintain separate paper sheets for timings of the buses. We are also providing the web portal for the passengers so that they can the check timings as well as last station visited by the bus and upcoming bus station. At present M.S.R.T.C. is spending a lot of money for maintaining sheets for arrival and departure timings for the buses which causes a lot of paper use. But if proposed system will be used then it will help the depot staff to maintain the records automatically so, this will reduce the paper use as well as pollution of environment caused by the paper use. In market RFID Tags and Readers are also available very easily and they cost cheaper also. Because of this the proposed system is economical and convenient to use.

5. Future Work

In future we are planning to integrate RFID with GPS so that depot as well as passengers can see the exact location of the bus. We also plan to integrate the system with some additional feature like, sending massage from bus to central authority about other information including ignition status, door Open/close status and passenger count etc. We also try to

integrate the traffic status in system for more accurate results

Service And Facility	Unsatisfied Passengers
Maintaining departure timing	67.17%
Maintaining arrival times	71.83%
Employees and management behavior	72.17%
Bus and bus station neat and clean	88.50%
Toilets at bus station	81.67%
Drinking water	81.67%
Refreshment facilities on routes	95.50%

[1].

Conclusion

This paper represents literature survey on M.S.R.T.C. and RFID. It also gives a brief idea about the problems faced by M.S.R.T.C. and some description about RFID. This paper also represents an approach to solve the problems faced by M.S.R.T.C. such as late arrival and departure of the buses and some other issues.

6. References:

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