

Private Motorcoach Management System

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Abstract: Management Systems are very popular in the present day. The goal of this research is to determine how to make the transition from a manual, paper-based Private Motorcoach Management System to an automated one by enhancing and perfecting the current automated Private Motorcoach Management System. This will make it easier to employ automated Private Motorcoach Management Systems more effectively and eliminate the usage of manual paper-based systems. The purpose of this research is to examine the effectiveness of currently used Private Motorcoach Management Systems, how they utilize new technologies, and what areas will need future attention. The conclusion of what features should be produced in the current automated Private Motorcoach Management System for future enhancement can be reached with the use of published research studies, questionnaires, and interviews. This paper looks into the ways of improving the existing Automated Private Motorcoach Management System in order to help with the transition from a traditional paper-based Private Motorcoach Management System to an automated Private Motorcoach Management System.

Keywords: Technological Systems, Management Systems, Motorcoach Management Systems

1. Introduction

This chapter will briefly describe the Private Motorcoach Management System (PMMS). This is one of the proposed solutions that can be used by private motorcoach companies, especially in Sri Lanka. The main aspects to be discussed include the background to the system, the problem statement, the project objectives, and the scope of the project.

Bus transportation services in Sri Lanka are operated by both the government and the private sector. Most of the population in developing countries depends on public transport. The private bus sector in Sri Lanka consists of 19,000 vehicles, which are independently owned, mostly by single-vehicle Owners. Currently the owners follow manual procedures to manage their business procedures. Which means all their records about income and expenses employees and their salary payments, maintenance details and expenses from minor repairs to major repairs, loan/finance payments and profit calculating are doing manually. Within this manner owners are not able to manage their income, expenses, and get a proper idea about their upcoming maintenance and loan/finance payments, also the employees are not able to get to know how their salaries are calculated.

Aim

The main aim of this research is to introduce a novel and fully automated system to handle the private motor coach system. As the existing motor coach system is manual and paper based, the proposed system will help to reduce the prevailing issues and newly introduced features will enhance the performance also.

Objectives

- Daily profit calculation
- Cost calculation depending on the route
- Salary calculation and view ability to the employees
- Predict and notify upcoming maintenance
- Record employee details and their salary payments
- Predict and notify upcoming loans/finance payments
- Reduce occurring unexpected expenses.

Only a small percentage of private motorcoach owners in Sri Lanka are integrating with automated private motorcoach management systems; the majority of owners still use paper based PMMS. The majority of automated Private Motorcoach Management Systems lack an active system that is current, and those that do have an active system encounter issues interacting with it.

2. Literature Review

2.1 Key Definition

a. Transportation

Transportation is typically a means to other ends, in both its passenger and freight aspects. (Pisarski, 1981) Transportation refers to the different ways that people and/or products are moved from one location to another. The ability and willingness to move huge numbers of people or big amounts of freight quickly and safely across long distances has grown, and this is a sign of civilization in general and of technological advancement in particular. Simply, A means of moving from one place to another is transportation. Air, land (train and road), water, cable, pipeline, and space are all forms of transportation. Infrastructure, transportation, and operations make up the field. Trade between people is necessary for the growth of civilizations and is made possible by transportation.

b. Private Motor coach System

A motorcoach is a large vehicle used for public transportation. When examine the research articles we can see, there are little number of scholars talk about motorcoach systems. It is less than the number of fingers of

the hand. It is very timely to talk about such a topic in such a situation.

2.2. Management System for Private Motor coach

c. Modern Technology for Transportation
Efficiency, convenience, and safety are the three requirements that essentially give rise to innovations in transportation technology. Working together, scientists and experts in the transportation sector make sure that these new technologies move more people (or objects) faster, safer, and with the least number of resources. The combination of accumulated technology plus planned resource allocation has not altered the fact, however, that the cost of adequate mobility is very high. (Owen, May 1962) Further he said Current transportation developments imply that completely new methods and approaches could significantly improve an efficient mobility strategy. The biggest omission in foreign assistance programs may be the lack of research and development to investigate these possibilities. If any country has the technical capacity to develop a transportation system that can move people and goods anywhere, anytime with a maximum of efficiency and comfort at reasonable cost, that was the benefit of modern technology.

d. Inventing Information Systems

As it relates to how information and communication technologies (ICT) can be used to enhance business operations and modernize the value chain systems that organizations use to procure, produce, and deliver goods and services around the world, the study of business information systems may cross disciplinary boundaries.

2.3 Different system for Cost calculation, Salary calculation, Maintenance & Financing

a. Salary Management Systems

Salary administration is listed as a technique. In general, it is a mechanism that informed management uses to assess the value of a contributor's contribution. This management decision-making process will eventually consider the potential of the individual as well as performance. (FLEET, NOVEMBER 1967) Employee salary management system is a web application, enabling the organization to handle salaries of employees. (Muhammad Azeem, 2011-05-12) As well Another scholar explained why we need this type of system, In the past, it was had to manually complete the wage entry, computation, and total number processes. Low processing speed and easy error-making lead to low efficiency when the volume of data is fairly huge. (Zhang Hao, 2012)

b. Maintenance Management System

For the computerized management system called as a CMMS. Software that centralizes maintenance data and facilitates maintenance operations is known as a computerized maintenance management system, or CMMS. It assists in maximizing the use and accessibility of tangible assets like machines, transportation, communications, plant infrastructures, and other assets. (What is a CMMS? n.d.) In order to transport goods efficiently, it is critical that vehicles operate at a high level

of availability or uptime and, in particular, avoid failures that result in unforeseen stops by the side of the road. Failing to complete the transport mission and an unforeseen stop by the road can result in costs such as delivery delays as well as damaged cargo. (Lindgren, 2017) Maintaining regular maintenance is one crucial element for managing uptime. However, due to the costs associated with planned downtime and workshop activities, excessive maintenance is not ideal. As a result, to establish the best possible balance between maintenance and failure risks, maintenance should be scheduled.

c. Financing System

We need system for calculating expenses, identify incomes, get proper idea about loans. Then we can get proper idea about financial stability of a any organization. There are lots of system created for with different purposes. Business owners often arrange for this to be customized.

3. Methodology

The objective of this research which aims to examine how to update traditional manual paper-based Private Motorcoach Management Systems and the use of automated Private Motorcoach Management System as well as identify the potential problems while integrating with the prevailing automated Management Systems. The describing study was conducted to identify the problems in this filed. The area of study was Private Transportation Sector in Sri Lanka. Private motorcoach owners, passengers, employees were respondents of the research.

A. Collection of Sample

The population of this research was private motorcoach owners, passengers, employees in Sri Lanka. Since there was a large population of private motorcoach owners, passengers, employees nonrandom sampling method was used. To increase the data accuracy the sample data was taken from Western province, Central province, Southern province and Northern province.

B. Collection of Data

In this research, as an instrument for data collection questionnaire and interview and published research studies on private motorcoach management systems have been used. Questionnaire distributed online through google forms as well as hardcopies for those who don't have access for google forms. Several interviews were conducted to improve the quality of this research.

Through this research, several specific facts were determined. Such as still most of the private motorcoach owners going with manual paper-based systems and the problems regarding that, problems related to the automated private motorcoach Management Systems while integrating with it such as the updating of the systems, user friendly issues, Motorcoach owners

cannot directly identify the upcoming expenses and the maintenance expenses and maintenance. And also, they have to follow huge process to calculate daily cost of the motorcoach depending on the route. That is why they are not able to directly identify the future expenses. When we consider about the employees also, they cannot directly identify how their salary created how much EPF/ETF they have allocated, and their salary increments according to their performances etc.

The first step is the focus of this research, which focuses on how to support the transition from a manual paper-based system to an automated private motorcoach management system and what features should be added to the current automated private motorcoach management system in order to improve performance. As the second move author established the identification of content of research papers that author have studied. Author prepared questionnaires and conducted the interviews with related parties as the third move. As the fourth move author analyzed and categories the new features that should be added to the prevailing automated private motorcoach management system. In the final move authors interpret the results of analysis and present the review and synthesis of information which authors analyzed in the research.



Figure 1. Expected System - PMMS – Main Interface
Source: Author

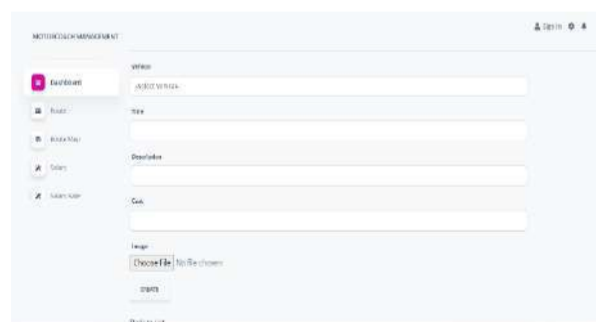


Figure 2. Expected System - PMMS – Interface
Source: Author

4. Results and Discussions

This section shows the results of analysis. I have read more than 30 research papers regarding management systems and created the questionnaire and distributed the questionnaire to a set of 50 people and conducted interviews among 20 persons who are relative to the system. After analyzing the sample data, it was very clear that Private Motorcoach Owners, Employees, and Passengers are having problems while integrating with traditional paper-based systems as well as prevailing automates systems. The gathered data with the help of the questionnaire made it possible to clearly extract the final outcome and the decision which must be taken in order to accomplish the final output by what are the characteristics and features of the solution that must be think at most in order to emerge the best and efficient solution throughout the whole assumptions. Sri Lanka is a third world country which is still developing. When considering about the transportation sector it has a huge impact to the development of the country. But in the Sri Lankan transportation field most of the work is done manually.

The questionnaire and interview circulated was based on the close-ended questions. Author gave optional open-ended questions for further evaluation and research assistance. The responders mainly focused and answered mostly in a higher percentage for the bellowed mentioned questions;

A. Does your private motorcoach business has an active "Private Motorcoach Management System"

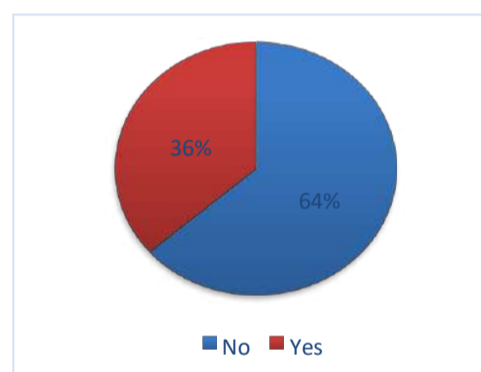


Figure 3. Availability of PMMS
Source: Author

According to the sample evaluation still 63.9% Sri Lankan private motorcoach owners don't have an active automated Private Motorcoach Management System. Most of the owners still working with traditional paper-based system and some work with both traditional and automated Private Motorcoach Management System. Only few private motorcoach owners fully depend on automated Private Motorcoach Management System. Because of these existing traditional as well as inaccurate automated Private Motorcoach Management System lead for many problems.

B. If your private motorcoach business has a "Private Motorcoach Management System" what is your satisfactory level of the current existing system?

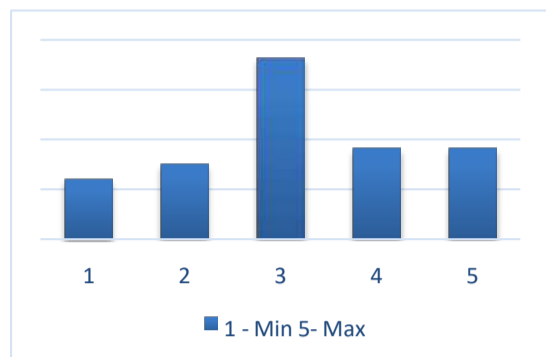


Figure 4. Satisfactory level of prevailing PMMS
Source: Author

Around 40% of the respondents had medium satisfactory level of the existing system. This was due to lack of user-friendly interface and the compatibility of the system.

C. *Would you like to integrate with an "Automated Private Motorcoach Management System"*

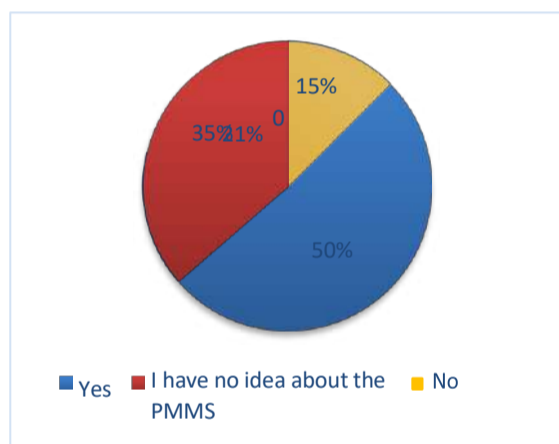


Figure 5. Likelihood to integrate with PMMS
Source: Author

50% of the responders suggest that they would like to integrate with fully functionalized automated PMMS and few were respondent as "no" to the question. But 35% had no idea about what a private motorcoach management system is. Lack of knowledge and attitudes about the importance of automated Private Motorcoach Management System is another factor why these still continue with the traditional paper-based system.

5. Future Enhancements

In this research the main aim is to identify and recommend how to aid in updating from traditional manual Paper Based Private Motorcoach Management System to Automated Private Motorcoach Management System by improving and perfecting the prevailing Automated Private Motorcoach Management System. The Automated Private Motorcoach Management System is a practical instrument for the transportation industry, and by expanding its capabilities,

we will be able to gain various benefits. As a result, paying attention to future improvement became crucial.

Because of the digital divide and lack of knowledge about the information technology infrastructure and most of the Private Motorcoach Owners in Sri Lanka still work with traditional paper-based system. So, the first thing these Private Motorcoach Owners should do is convert their traditional paper based Private Motorcoach Management System to the automated Private Motorcoach Management System.

Some Private Motorcoach Owners work with both traditional and automated Private Motorcoach Management System at the same time because of the issues that arise while using the automated system. Even though some Private Motorcoach Owners fully depends on automated Private Motorcoach Management System they are facing major issues while integrating with the systems.

The currently used automated Private Motorcoach Management Systems raise some issues while using it on cross-platforms. The system misbehaves if the viewing browser or platform of the web pages change. So, it will be very helpful for the future systems to be supported to display the web pages on any device as per its dimensions. And also, future systems can be developed as a mobile application providing all the services to register users as same as the web application.

Employee management, Salary management, Maintenance Management, Profit Calculation, Finance management still doing manually by motorcoach owners. So, it is a challenging task to a owner to manage the whole process and recording them. But if these tasks can do automatically with a few intermediate of owners that will lead to a massive progress in private motorcoach management system and will lead to time saving and provide accurate data and effectiveness and the efficiency will grow up rather than manual system.

Online motorcoach reservation system helps passengers to book a motorcoach for their special tours. Online inquiries/complain system helps passengers to send their complain or suggestions directly to the key person of the private motorcoach. Salary viewing process will help employees to view how their salaries are calculated and get a monthly salary report through the system. Financial management section leads to identify future financial needs and it notifies before they occur and get a proper idea about what the financial status of the asset. Cost calculation section helps to calculate cost by depending on the route and this will lead to allocate actual costs for future maintenance. Maintenance section records the whole maintenance, and this will lead to identify the upcoming maintenance and get ready before they occur. Profit calculation section will lead to get daily profits and monthly it generates the monthly profit report.

6. Conclusion

Private motorcoach transportation plays a vital role in everyone's day today life. This research was based on how to aid in updating from traditional manual Paper Based

Private Motorcoach Management System to Automated Private Motorcoach Management System by improving and perfecting prevailing Automated Private Motorcoach Management System. When analyzing the prevailing automated private motorcoach management systems, It is evident that there is room for improvement in several areas where we have the capacity to create the tools for better service than what is now provided.

The concept of the "Digital Divide" is severely restricted in Sri Lanka. Therefore, it is extremely difficult to bring about progress in small type of motorcoach transportation businesses. The effectiveness of the automated private motorcoach management system will also be impacted by managers', owners' employees' and passengers' lack of technological literacy or fundamental knowledge in some areas. Consider the fact that many organizations have neglected to take into account the high cost of technology, bad choices, competition, and the lack of a sound company strategy. This implies that in order to fully harvest and benefit from other aspects, an owner must be developed to their full potential.

One of the most important points to be made after reviewing all of the facts listed above is that the world is always changing. It only takes a moment to flip everything upturned, suggesting that we should always be aware. As a nation, we must advance in many sectors under the guiding principle of get together and move forward. It's not an individual who can enters to this technology but if the small, medium and large scale of private motorcoach owners get together and that make a huge change in our country for the success of private motorcoach transport services.

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