

Transport Workers' Database Management System

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Abstract

Over the last 20 years, the urban centres of developing countries have exploded in size. But public transport services have not had the necessary financial or institutional capacity to meet demand. As a result the informal transport sector has grown rapidly and substantially, also spurred on by rising unemployment and rates of urban poverty. Notwithstanding this global trend, there is a paucity of data collection and systematic analysis of transport workers and services. In this paper we have proposed a transport workers database management system which is automated and it can replace the old paper based system. The system will ensure reducing data loss and ease of accessing and retrieval of data.

Keywords: transport services, data collection, systematic analysis, database management system, reducing data loss

1 Introduction

Transport is an important component of economic activity in all countries but especially so in those that are developing. Since ancient times, cities and trade centers have developed in locations that took advantages of the availability of transportation connections such as rivers, roads, protected harbors and railways. [12] The potential for enhancing economic and social development through improvements in the transport sector is highly needed. As a part of development in the transport sector, efficient management of the transport workers' plays a vital role.

A management system is the framework of policies, processes and procedures used by an organization to ensure that it can fulfill all the tasks required to achieve its objectives. [8] But, it is a matter of grief that, the unguided nature of present development efforts regarding workers' management in Bangladesh is rooted in the absence of a vision for future development. A vision sets the direction for development and guide formulation of policy measures and strategies to attain identified objectives. [12] Unfortunately, no such vision for the workers' management exists in Bangladesh. still at this dominant era of automated systems based on enhanced improved technologies, most of the public and private

transport companies in our country rely on age-old paper document system. The outcome of such paper-based management system is quite inefficient as there remains high chances of data loss, difficulties in sharing the data, lack of storage space, prone to damage, inefficient document transportation, supply costs, poor environmental credentials, limited collaboration, editing problems. Thus, considering the greater inconvenience caused by non-automated systems, ours is an approach to overcome the errors by completely switching to an automated employee management system in the transport sector relying upon cloud based automated database. In this consideration, this paper aims to provide an efficient cybernation of the workers' administration in the transport sector in Bangladesh.

We have organized our paper as follows. Section II gives the idea about the related works that have been done so far in this field. Section III deals with the current situation and our proposed system. In Section IV, we have discussed about the requirement analysis, conceptual design and development of our proposed system. Section V deals with the discussion. Section VI presents the limitations, future expansion of the whole system and finally Section VII concludes the paper.

2 Literature Review

Transport is an important part of Bangladesh's economy. Since the liberation of the country, the development of infrastructure has progressed rapidly and a number of land, water and air transport modes exist. However, significant progress must be made to ensure efficient management of the workers' associated with the different transport systems.[10] Because this is a priority for the aimed development and maintenance of transport infrastructure in the country. This section gives an idea of the related digitalized works so far in the context of workers' management both in the nation and abroad.

In today's business environment, most businesses, from small businesses to large corporate entities, organize and maintain a tremendous amount of information, particularly information in the form of paper-based documents and electronic documents. The task of organizing and maintaining such a large number of documents, as well as document types, can, and typically is, a time consuming and costly matter.[4] So a digitalized system would be much more desirable to manage such a huge bundle of information. The management of workers having varying skills is a challenging undertaking, and unless work is assigned efficiently, individual workers will not be able to achieve maximum work efficiency. [9] As per a long term vision policy of Nepal, by computerizing the workers management system related to transport management, prompt and reliable service can be provided. Effective co-ordination will be established among the concerned agencies involved in transport management.[7] As per a study conducted by a research institute of BUET, related to resolving the issues for a sustainable development in transport sector in Bangladesh, the need for automation of employee management with employee shift management, record-

ing preplanned leaves , change in pick and drop points, pick and drop management using Google, daily rostering of employees depending on the route and shifts have been highly emphasized .[12]Also study shows,in the developed countries,typical management information (computer) systems which are utilized by institutions to perform risk and expo sure calculations and analysis are complex software/ hardware systems.[13]

A survey of seventy-five Montreal middle managers was conducted, investigating their perceptions of the impact of automated office systems on their jobs and work. Two key findings emerged in the results. First, middle managers perceived that office automation had led to a variety of changes that, almost without exception, made their jobs and work more enriching and satisfying. Second, middle managers with first-hand experience with various systems, either through the presence of such systems in their organization or through their own personal use of such systems, were even more positive than managers without this exposure.[4]

According to the Grant Thornton International Business Report (IBR), a survey of more than 2,500 executives across 36 economies, 56planning to do so over the next 12 months.[2] Thus by this survey, we can realize how necessary it is to make the workers management system automated for improved services. Even for economies where labour costs aren't rising, the quest for productivity makes automation a compelling option.As per the The Quarterly Journal of Economics ,plants that use a large number of new technologies employ more educated workers, employ relatively more managers, professionals, and precision-craft workers, and pay higher wages.[14]

Recently in Bangladesh, the transformation of the Bangladesh labour inspectorate has taken a major step forward with the launch of a digitalized Labour Inspection Management Application (LIMA) system. LIMA will improve the collection, storage and analysis of labour inspection data, benefiting workers and employers in all industrial sectors.[3] But a study reveals,still the other side of the picture is pre-dominant.Employee Leave Management Process in MetLife is conducted manually. The process involves a lot of paperwork. At present, there is no HRIS system to record employee leave data which makes the process very much complex and time consuming[6]

Thus, analysing the necessity of the overall automated system,our approach is directed at a method based on computer application program for managing electronic documents in a computer-based system. This perspective can provide a number of improvements over prior products, particularly, the way in which it automatically analyzes, stores, browses, retrieves and displays electronic document summary information.

3 Present System

The present system of workers' management in Bangladesh is not completely automated. Still paper based system adopted years ago is maintained to keep the documentations and informations related to the workers.This causes incon-

venience in searching the informations when required and there remains high possibility of data loss. Also paper-based system is inefficient for data storage and retrieval,affects the performance of the corresponding organisation,threat to security. On the contrary, most organizations in developed countries have already switched to automated information management system either partially or fully.This causes efficient management ensuring easy data retrieval,preservation of data security,no headache of paper-works and easy sharing of data online.

4 Proposed System

In this section, we have discussed how our proposed system is designed and developed. We have followed three sequential steps that include- (a) conceptual design, (b) development of the system and (c)system requirements

4.1 Conceptual Design

In order to understand the requirements of the system, we interviewed the authority of the Trust Transport Services. From the interview, we got to know about their entire employee management system which includes employees' personal info, their family info,salary-bonus info,working schedule and leave details,their shifts and other basic data. They still follow the paperbased manual system to accomplish these tasks and don't maintain any database system to store the huge volume of data which motivated us to design such a system. After analyzing the requirements of the system, we've taken further steps to implement the system.

The following E-R diagram represents our transport workers' management system.Here the employee table stores the all personal information of an employee working in the company.Also regular info like employee salary,bonus, leave,attendance,working route,help provided,dependents' info.

ID	NAME	NID	CERTIFICATE	NAME	NAME	DAY	DATE	DATE	TYPE	TO
1022	farhan sadeed hamba	N8888		Farhan father	Farhan mother	09-MAY- 18				
1025	tarek ul vhai	N7777		Tarek father	tarek mother	09-MAY- 18			Driver	
1026	Hasibur Rahman Porag	N9876		Hasibur Father	Hasibur mother	02-MAY- 18			Supervisor	
1027	kanak chakma hoi	N23545		aaaaa	mmmmm	01-JAN- 70			Driver	
ID	NAME	NID	BIRTH CERTIFICATE	FATHER NAME	MOTHER NAME	BIRTH DAY	JOINING DATE	LEAVING DATE	TYPE	REPORT TO

Showing 11 to 14 of 14 entries

Previous 1 2 Next

To register a new account:

Register an Account

First Name

Middle Name

Last Name

Email address

Password

Confirm password

Register

Transport Workers Database Management System

Update Info

Your account is pending
Please contact with branch office

Copyright © Your Website 2018

Account after being approved:

Search for...

ID :	1027			
Name :	kanak chakma hoi			
NID :	N23545			
Birth Certificate Number :				
Father's Name :	aaaaaa			
Mother's Name :	mmmmm			
Date Of Birth :	01-JAN-70			
Joining Date :				
Leaving Date :				
Type :	Driver			

Detailed information of an employee:

Transport Workers Database Management System

- Dashboard
- Employee Info
- Education
- Dependents
- Accounts
- Contact Info
- Health Info
- Leave Details
- Overtime
- Worker Type Info

ALL EMPLOYEE

ID :	1027
Name :	kanak chakma hoi
Educational Qualification :	jsc psc
Is Amateur? :	
Years Of Experience :	5
Previous Organization :	BUP
Remarks Of Passed Test :	passed

[Update](#)

After being logged out:

Database Management System

Search for...

Ready to Leave?

Select "Logout" below if you are ready to end your current session.

Cancel

Logout

Overtime Date

Shift

MORNING SHIFT

Update

Office Worker assigning employee overtime details:

Employee Overtime

Employee Id

00000001 ▾

Overtime Date

mm/dd/yyyy

Shift

MORNING SHIFT ▾

Update

4.3 System Requirement

To develop the system, we basically used HTML,CSS and PHP in frontend. At the backend, Oracle 11g database has been used.

5 Discussion

In this modern age of digitalization an automated transport workers' management system is a necessity.Our proposed system can be a good alternative for the complex paper based system. It can provide a easy accessed and searchable database for all the workers of a transport company.It will reduce the paper work eventually.Moreover it will keep the time track like attendance and work hours which is difficult to maintain perfectly by a paper based system. The expense management is an incredibly useful feature of most of the companies.And this sensitive issue should be handled by automated system which is provided by our system. Besides all of these there are some more issues to be handled like payroll,asset management, workers leave,their shift planning,their route planning etc. All of these features are there in our system.And obviously paper based system could find difficulty to handle these things efficiently.

Last of all comes the most important issue of security and sustainability. In the time of natural calamities or disaster or any accident paper based system is very hard to preserve. On the other hand this automated system can sustain in these times and can reduce the data loss and the security issues can also be met better than the paper based system. For all of the above logics we think it is better to switch from paper based system to an automated system like ours.

6 Limitations and Future Expansion

Though we suggest that our proposed system can replace the old age paper based system, it has some limitations as it is a very preliminary system. It lacks the ability to efficiently store images, records with high variance in length, possibly though an auxiliary file management system and data compression algorithms, accessible from the database. It lacks optimizing use of cache systems for faster retrieval. It lacks offering data cleaning, reducing volume of text information, merging data from different sources. It is not so user-friendly with a great visual and useful, efficient dashboard. Our system is not web based and it is only running on a virtual server. Our security and backup is not sufficient for a professional database system.

Modifying with these features can be a future aspect of our proposed system. Like there can be replica of the main database in any other different servers to backup all the files. Cache system can be developed to make the faster access of the data. Real time processing and built in functions such as computations of "time elapsed since last 5 transactions" can be added to various levels of aggregation.[1] An efficient dashboard can be built with a great visual and the system can be made much more user-friendly. Storing images, video or records etc features can be added. Security issue can be handled by offering different levels of checking and imposing constraints. The system can be connected to a real server so that anyone having permission can access it through any network or device.

7 Conclusion

Today automation is not a trend, it's a tactic that gained popularity and its potential is infinite. Greater accessibility between workers and managements, better training programs, and more efficient performance appraisals have allow any company to reach its business objectives without compromising on employee satisfaction[5]. So we propose a system which meets the demand of a fully automated system. It saves time to search any data about workers, it reduces cost in many extent, it reduces data loss and maintain security. All the data is in organised form in the database. It reduces the labour of present paper based system. The system ensures reliability. In Bangladesh, whereas only 1,500 buses and 27,000 trucks belong to the state-run Bangladesh Road Transport Corporation, some 80,000 trucks are privately owned, by firms or individuals. Here, wages

and working conditions are abysmally low for the over 500,000 workers, with no appointment letters or payment of regular and proper wages and 16-20 hour workdays[11]. So an automated system for the workers can keep a clear record of everything and thus the management of their wages, work hours, work conditions will be in a good state and moreover this can be an effective step towards the digitalization of Bangladesh.

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