Advanced School Bus Transport System Using Salesforce

Mokshada J. Harshe
Student
JSPM Narhe Technical Campus
Pune, India

Rachana M. Sane
Student
JSPM Narhe Technical Campus
Pune, India

Sonali R. Mhatre
Student
JSPM Narhe Technical Campus
Pune, India

Sneha B. Sarpate
Student
JSPM Narhe Technical Campus
Pune, India

Vilas S. Gaikwad
Professor
JSPM Narhe Technical Campus
Pune, India

Abstract—School Buses are under constant pressure to deliver a safe, convenient and reliable service to the students and their parents. Our state of art technology enables the school transportation department to increase safety quotient to a next level along with increasing efficiency and disciplined driver behavior. It is a one stop solution for live tracking, route management, mail system, emergency preparedness, student attendance and more. In today's scenario, avoiding any mishap with the children has become an important issue for both the parents and school management. With our solution one can easily monitor the school bus along with the students in it so that you never lose sight of your child. Be able to live track your child's bus on the map. Get notified when the bus reaches or leaves the school. With vehicle tracking, drivers are more punctual. Jobs are started and completed on-time. You always know where your vehicles are, where they were, and for how long. Over-speeding & detours are identifiable. In the event of a dispute, vehicle tracking provides irrefutable proof-of-work.

Keywords— Salesforce, VRP(Vehicle Routing Problem), BTS(Bus Transportation System)

I. INTRODUCTION

If you're manually planning your school bus routing schedules, there's no way for you to be fully confident that the data you're seeing is accurate and up-to-date. When disparate systems house your important student and driver data, the daily management of your school bus routes is, in a word, stressful. BTS tracking systems give you more control over student safety. TRIP and STUDENT easily integrate with your transportation software system, adding an extra layer of insight into your school bus routing. With this integrated system, you also receive real-time updates regarding student locations and route deviations.

With BTS, you will: Easily manage bus routes, students and drivers; Analyze bus routes and pickup sites, and quickly adjust to changes[10]; Create and analyze "what if" scenarios to continually improve service and lower operating costs;

Seamlessly integrate with district-wide student information systems; Increase efficiencies, enhance services, and reduce costs. You can select a geographic area or an entire trip to have a view on stop sequences based on time or distance. You also can generate two alternative ways to run a trip, either by fastest time or shortest distance, to determine which option is best [1]. In addition, you can select any number of approved stops, or any map points, including students' pick up and drop off locations. Salesforce makes revolutionary business applications, served from the cloud, designed to help you generate leads, get new customers, close deals faster, and sell, service, and market smarter. It all adds up to growth, and possibly the need for more office space [1].Today every company is in the app business. App Cloud is your one-stop shop for building, running, managing, and optimizing apps using the same technology and expertise that fuels our success. No hardware, means no headaches when it comes to your mobile and laptop use. No need to install any bulky hardware, software, or maintaining any update; we handle the infrastructure so you can concentrate on what's important in growing your company.

Increasing productivity, stay mobilized, and increasing revenue. About 100,000+ companies trust Salesforce as the world's #1 Sales and customer relationship management app.

II. LITERATURE SURVEY

The literature review plays a very important role in the work process. It is a source from where work ideas are drawn and developed into concepts and finally theories. The study of literature on School Bus Transport System in general and in the field of library and information science particular revealed several efforts made by the scholars in different discipline. Depending on what is observed in the literature review, a researcher will understand where his/her work stands. The organization did not have computerized transportation information system nor any priority to develop one. Many system does not reduce transaction of buses [2].

Some does not see the capacity of the student and directly allocate some buses for same route. Vehicle routing problem does not solved with time problems. Travelling is as per the timetable & it does not contain any other information or details about vehicles and drivers. Some Survey paper is applicable only if vehicle capacity is more. Which leads to major drawback. Many focus is only on the minimization of travelling cost and does not consider travelling distance.

III. EXISTING SYSTEM

Current existing systems that is used by school bus transportation does not support digital storage of data related to students. And if so, it is not feasible for bus incharge, for gathering information in charge have to take permission from school office. It also increases the storage area for manual management of files. Storage of this files also leads to take more security policies where as in cloud based system information does not get misplaced, can be stored safely and can be retrieved easily [2].System does not provide communication between bus in charge and parents, which creates communication gap between bus incharge and parents, due to which bus driver get into trouble because of continuous calls from parents. If bus is late due to some technical problem it becomes inconvenient to inform it to each and every parent by bus driver.

IV. PROPOSED SYSTEM

Main purpose of this works to reduce work efforts; as all this system work digitally so that no one have to keep all records manually. Because it will become hard to keep all the information updated all the time. In this system all the changes updated automatically and all members in that system get informed [1]. Scope of this works to deliver child to his home safely by providing details about traveling from school to home. This will generate communication between driver and parents. Parents can have access to the location of bus anywhere, anytime. Developer have the login access to the system. Developer's main aim is that system must have to work properly so that no problem is occur while use that system and user can able to access system easily also he will get all the information up to date. Following are some responsibilities of developer:

Login form should work successfully.

Logout link should redirect to login screen. Logout link should be functional.

Forgot password link should work. It should redirect to password recovery page.

Forward and backward buttons should work properly while logged in and also for   logged out user. Work should be similar in every popular browser. Errors should be handled properly. This Architecture highlight the attributes of work, in which Bus incharge is main attribute who handle all other attributes. Route is responsible to handle Bus information and Google map which will navigate the buses on route. Here Caretaker is responsible to communicate with parents through Email system ,giving information regarding issue of why bus is late, route of bus is been changed due to some issues and many more problems. School Bus Transportation has provided with one additional feature of Parents feedback, which will help incharge and organization

to improve their system and be more convenient. School Buses are under constant pressure to deliver a safe, convenient and reliable service to the students and their parents. This technology enables the school transportation department to increase safety quotient to a next level along with increasing efficiency and disciplined driver behavior. It is a one stop solution for live tracking, route management, mail system, emergency preparedness, student attendance and more. In today's scenario, avoiding any mishap with the children has become an important issue for both the parents and school management. With our solution one can easily monitor the school bus along with the students in it so that you never lose sight of your child. Get notified when the bus reaches or leaves the school. With vehicle tracking, drivers are more punctual. Jobs are started and completed on-time. You always know where your vehicles are, where they were, and for how long [1]. Over-speeding & detours are identifiable. In the event of a dispute, vehicle tracking provides irrefutable proof-of-work.
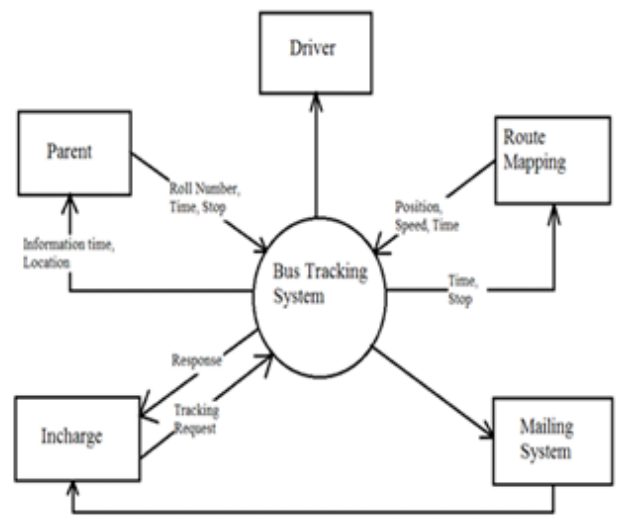

Fig. 1. Bus Tracking System.

CONCLUSION

To maintain whole data of a school bus, parent, child, driver, caretaker manually is very tedious as well as difficult job. It also requires more effort. Therefore by mentioned work these efforts will be reduced. To provide student safety this work will be a milestone. It will help to reduce communication gap between parent and driver. It will keep parents up to date about school bus timings and child safety.

REFERENCES

[1] City Vehicle Routing Problem (City VRP): A Review,Gitae Kim, Yew Soon Ong, Chen Kim Heng, Puay Siew Tan, and Nengsheng Allan Zhang.

[2] L. Dablanc, "Goods transport in large European cities: Difficult to organize, difficult to modernize," Transp. Res. Part A; Policy Practice,vol. 41, no. 3, pp. 280–285, Mar. 2007.

[3] T. G. Crainic, N. Ricciardi, and G. Storchi, "Models for Evaluatingand Planning City Logistics Systems," Transp. Sci., vol. 43, no. 3, pp. 432–454, Nov. 2009.

[4] E. Taniguchi, R. G. Thompson, T. Yamada, and J. H. R. van Duin,City Logistics: Network Modelling and Intelligent Transport Systems, New York, NY, USA: Pergamon, 2001.

[5] R. Cuda, G. Guastaroba, and M. G. Speranza, "A survey on two-echelon routing problems," Comput. Oper. Res., vol. 55, pp. 185–199, Mar. 2014.

[6] E.Dernir, T. Bektas, and G. Laporte, "A review of recent workongreen road freight transportation," Eur. J. Oper. Res., vol. 237, no. 3, pp. 775–793, Sep. 16, 2014.

[7] A. A. Juan, J. Goentzel, and T. Bektas, "Routing fleets with multipledriving ranges: Is it possible to use greener fleet configurations?" Appl.Softw. Comput., vol. 21, pp. 84–94, Aug. 2014.

[8] V. Pillac, M. Gendreau, C. Guéret, and A. L. Medaglia, "A review ofdynamic vehicle routing problems," E. J. Oper. Res., vol. 225, no. 1,pp. 1–11, Feb. 2013.

[9] C. Lin, K. L. Choy, G. T. S. Ho, S. H. Chung, and H. Y. Lam, "Surveyof Green Vehicle Routing Problem: Past and future trends," Exp. Syst. Appl., vol. 41, no. 4, pp. 1118–1138, Mar. 2014.

[10] E. Taniguchi, R. G. Thompson, and T. Yamada, "Modelling city logis-tics," in City Logistics I, E. Taniguchi and R. G. Thompson (Eds), 1999,Institute of Systems Science Research, Kyoto, Japan, pp. 3–37.