The Bus Real-time Locating System (CM3-12)

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BACKGROUND

Time is important to people. In Hong Kong, life is fast-paced. People waste a lot of time on many things such as waiting for a bus, waiting for a train or waiting for a flight. However, bus companies did not provide accurate arrival time of next bus for bus passengers to plan a trip. If a user knows that a bus will arrive in nearby bus stop after 15 minutes when staying at home, he can go out later and do anything he wants. For an elderly, if there is a food market, he can stay in to protect himself.

Objective

The existing bus system provides inaccurate arrival time with error +/- 5 minutes and is only available for few routes. We would like to improve accuracy of estimation arrival time by new algorithm and reduce the error. The passengers can plan their journey much easier and reduce the time lost in waiting the bus.

Our Idea:

- Implement better location of bus location marking
- Advanced and real-time bus information by new algorithm
- Provide platform for bus company analysis the bus information

METHODLOGY

The system can divided into four main parts, System server, two client applications and a mobile application. Both the client and mobile applications will be connected to the database server to get and write in the data.

The project overview and details of the system will be gathered by analyzing the system design process.

The server is consisting of a TP server and database server. The database server is ready to store the data which come from the data collection and analysis server. The TP server allows the user to access the database and provide data analysis.

The project overview will be updated weekly because we need to make sure that the client application and database are in the right working condition. The TP server is easy to update the website because we need to transfer the data to the website server accordingly. What needs to be updated weekly is to update the data to the database and provide platforms for bus company to access the data.

There is an internal web application used in the bus company which is for administrative purpose. It allows administrator to add bus, view bus, add bus step, view bus step, add route, add bus step to route and view the route. It mainly is adding and viewing the data to and from the database. It is a controlled web page which is much convenient to add data in the database instead of typing SQL code in the database.

There is a web application for customer which means the passengers. This application will provide a map view displaying the location of specified route and estimated time of arrival of next bus. Passenger can be much convenient to get the bus information that helps.

There is an application installed on mobile device which has GPS function. The application will send the current location data to the server. Also, it will tell the system that there are any traffic incidents on the road. And the system will calculate the estimated waiting time of the bus.

CONCLUSION

We think that we achieved the goal which stated in the beginning. It is able to report the current location of all bus and give the estimated time of next bus. This has improved the general informations availability and provide better service to the users. For the further development, the user interface needs to be more user-friendly and more beautiful by reducing the number of mouse click and adjusting the format of the webpage. Moreover, the system needs to be automatic to generate different kinds of statistics by charts for analysis. This may help the bus company to adjust its bus schedule during peak hour or non-peak hour in order to minimize the delay time.

RESULTS

The client user application is the main theme of the system. The web application can show the current location of bus (bus number) and the bus stop (next market). On the other hand, the route number, the car license and the time of update can be shown accordingly by clicking the bus icon. So, user can get the estimated waiting time of the bus.

The bus location will be instantly changing due to the update of the new location data to the server. Also, there is some probability that the bus and the bus stops don’t match in the database. If the user select the wrong bus stop, it will show the right one on the map with color to indicate stage.