CHAPTER II

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter shows related literature and studies after the intensive searches and researches conducted by the researchers. It also present the comparative matrix that guides the researchers to completely understand the process involved in the study.

Related Literature

This part of the study will mainly discuss about the studies done by previous research of various authors which is similar to the area of the present study. Throughout this chapter, there will be comprehensive discussions on the previous studies related to the area of study.

From the study of Amistad et. al, (2006) which is based on the perspectives of the 23 LGUs or 23 % of the 98 LGUs outside Metro Manila through key informant interviews. Based from the author's study, most of the city respondents are thickly populated. Majority of them are first class cities wherein there is a continuous increase in the number of registered motor vehicles every year. The level of necessity and level of attainment of objective for traffic signalization are very high and high, respectively. Some of the LGUs have not installed traffic signals because of budget constraint. In connection to the study of Amistad et al, Amistad & Regidor (2006) states that, unsignalized intersections (crossroads and T-junctions) where traffic is regulated by traffic signs are the most commonly used intersections in traffic management. The right-of-way regulated by traffic signs presupposes that a driver makes the decision to pass through if he is at the first waiting position directly at the stop line. It cannot be denied that some unsignalized intersections along the national highways and/or arterial roads are very much congested and most often have limited pedestrian and other safety signals for drivers.

In connection to the problems of traffic, from the study according to Macabbad & Regidor (2009) Intelligent Transportation Systems (ITS) technologies can supplement construction-based methods to improve the capacity of existing transportation systems. The said technology, presents viable solution to traffic congestion problems rather than focus only on the intensive road infrastructure developments and improvements. Based from the authors, traffic information such as speed, and travel time along road networks, a fundamental knowledge-based resource used in traffic management, assessments and planning, can be obtained only through sustainable data collection system. With the examination of ITS technologies presents that probe car survey system is a sustainable data collection method to gather real-time and historical traffic information. The said technology has the goal of resolving road transportation issues such as traffic accidents and congestion through

application of information and communication technologies. From the study of the authors which was based on Japan's experience, ITS promotions involved research, institutional and regulations systems, building architectures, platforms and operation organizations. It is implicitly understood then that transportation system is not just about road infrastructures but actually involves interaction of the three elements of road system which is humans, roads, and vehicles. Based from the authors, there are two ITS deployments in the Philippines. These are the traffic responsive signal system and the Metro Manila electronic toll collection (ETC) system. Based from the study, the traffic responsive signal system utilizes the Sydney Coordinated Adaptive Traffic System (SCATS) technology which is also introduced and successfully installed in Cebu City. On the other hand, the ETC system, also known as E-PASS system uses tags placed inside the windshield of vehicles which are electronically read at the entry or exit of E-PASS toll lanes. Initial study revealed that the dedicated E-PASS lane has an average tollbooth transaction time of 1.5 seconds per vehicle while 15.0 seconds per vehicle for the manual scheme, and 5.9 seconds per vehicle for mixed-mode lanes. According to the authors, faster transaction time thus, helped reduce queue lengths in toll booths

In prior to the problems of traffic, The Metropolitan Manila Development Authority (MMDA) launched a traffic control system which will supposedly improve the monitoring and management of the traffic situation in Metro Manila. According to the MMDA Chairman Francis Tolentino, the said system is called "Hermes". The said Traffic Signal System (TSS) can analyze and consolidate information for faster mobility, improved road safety, optimized vehicle flow and pedestrian movement, and reduced travel times. (Tan, 2014). At the first phase of the project starts with the installation of 25 new fiber optic, high definition Pan-Tilt-Zoom (PTZ) Traffic Control/Video surveillance cameras and 36 45-inch video screens to monitor activities, where around 150 CCTV and IP cameras are currently installed all over Metro Manila.(Masinag, 2014).

Related Studies

MMDA for Android was developed by UP Information Technology Development Center (formerly UP ITTC) and MMDA under the leadership of Chairman Francis N. Tolentino. The application is itself less of a navigation device and more of a general traffic indicator and at the same time information repository for traffic laws. The said app has 3 different view types, which provides a different representation of traffic across nearly all of the Metro. The system view outlines the metropolis' major roads, assign colors to them according to the severity of the traffic situation. As a continuation, the app gives the names of the general areas, and then provides a color-coded indicator of the northbound and southbound lanes beside the names of the streets. It also lists the various rules and policies for the road, along with some guides for sudden occurrences like accidents

Waze Social GPS Maps & Traffic is one of the most popular maps and traffic apps on iOS and Android. The app is said to be fast, intuitive and, often times, more accurate than the highly rated Google Maps. Currently, it is making its mobile application even better by designing it to offer a cleaner, prettier user interface and quicker access to useful actions. Sending directions, location or estimated time of arrival to your contacts is easy in just one tap. The user can also get traffic-based reminders, making it easier to get to any destination on time -- as long as the user's calendar is synced with Waze. Last but not least based from the writer, this new version of the app "significantly" reduces battery consumption, according to the company

In continuation, Waze has the GPS capabilities to allow for location tracking on a 2D or 3D map, updating user's position and reports around the user's location in near real-time. Incident reports pop up as icons on the maps. Crowdsourcing factors in on the reports function of the app. As the GPS updates a user's location, the app adds new reports from Waze account holders in the Philippines who've sent in updates. This social aspect of Waze makes it a resource that is powered by the people. From traffic notices to road hazards to accidents, Waze gives up-to-date information that is given by fellow motorists (Barreiro, 2012).

Take Me There was developed by students from University of Cebu Lapu-Lapu and Mandaue which is a mobile-based traveller's guide wherein it focuses to provide the best route given to a place of origin to destination and the estimated cost of travel. The system runs on Android smartphones with an operating system which is not lower than Android 4.0. It uses the smartphone's GPS (Global Positioning System) to determine the current user location. The app computes the cost of travel depending if it's a taxi or a Public Utiliity

Jeepney (PUJ), provides routes to famous places and can bookmark places. The system needs internet connection and registration of the user in order to provide services to its users.

#TRAPIK is a system that was developed by the students from University of Cebu Lapu-Lapu and Mandaue which provides traffic and route advisory for the commuters and gives possible alternative route to all the commuters in Mandaue City for every commuter to have a better travel experience. The system helps commuters and drivers to have an efficient way to be at their destination by giving an advisory what road is affected by traffic. It can also give the exact amount of fare, the distances between different destinations and what kind of vehicle should be used. #TRAPIK provides alternative route to users, indicates the flow of traffic, gives update about traffic due to accidents and road repairs. The system is made possible through the monitoring of the traffic enforcers.

Table 1

COMPARATIVE MATRIX

Comparative matrix is a statistical method and software tool for linguistic analysis through corpus comparison.

Related Studies	Features	Limitations	Platform Details	Support
Name: ESC: URL: none Proponent(s) University of Cebu Lapu-Lapu and Mandaue	-Provides ranked alternative routes to users with travel time and estimated cost of travel of taxi and Public Utitlity Jeepney (PUJ) -Provides traffic situation -Let users post / report updates about traffic	-Limited in Mandaue City only	Mobile App	-User Guides -Email
Name: MMDA For Android URL:https://play.google.com Proponent(s) UP Information Technology Development Center	-Share or Report traffic info via Twitter. - View problem areas so you can avoid them. - View road incidents that might affect your normal travel times.	-Limited in Manila only	Mobile App	-FAQ -Email -User Guides

Name: Waze Social GPS Maps & Traffic URL:https://play.google.com Proponent(s) Waze	-Live routing based on community driven, real-time traffic & road info. -Find the cheapest gas station on your route. -Add information on local places and businesses. -Add Facebook friends and sync Contacts.	- Late notifications to the users -does not provide routes streets -Routing distance is limited to about 1,000 miles -Issues and limitations on your supported model smartphone	Mobile App	-Trouble shooting -Account Problems -FAQ -Email -User Guides
Name: Take Me There URL:none Proponent(s) University of Cebu Lapu-Lapu And Mandaue	-Computes the estimated cost of travel a taxi and Public Utiliity Jeepney (PUJ) -Provides alternative route to users with estimated cost of travel - Bookmarks places choosen by users	-Limited in Lapu-Lapu City only	Mobile App	-User Guides
Name: #TRAPIK URL:none Proponent(s) University of Cebu Lapu-Lapu And Mandaue	- Indicates the flow of traffic -Provides alternative routes to users -Let enforcers update traffic through monitoring	-Limited in Mandaue City only	Mobile App	-User Guides