Review of Literature

As we move in a metropolitan city which certainly has its own merits and demerits, on the other hand, there seems to be an urge as per the results of the research survey conducted [1,6], to avoid irritating situations in using transportation for university students, faculty and, non-faculty members. To tackle the issues such as traffic congestion, no-real time information [6], unexpected delays and, unorganized dispatching of buses/point from the terminal as well as issues such as addressing the security concerns of both students and their guardians since the rate of street crimes has an increase in the last few years, the need to use an automated transport system has increased as well. That transport system should be able to track the points in real-time to fulfil the requirements and, for this particular reason, Radio-Frequency Identification (RFID) alongside with Global Positioning System (GPS) technology should be planted in the points [1,5,6], so that people who avail this service do not have to wait for points alongside with the benefit for their guardians such that they will be able to track their children [1,6]. The university management will also be able to obtain real-time information of points, drivers and passengers. This will enhance the security of the point facility [1,5].

Another big concern is the management of large amounts of data which includes the data for Fee, Registration, Drivers and Vehicles. University and the Point Administrators along with their staff face a tough time managing the data as per the analysis of results of the questionnaire distributed among the relevant individuals and of several case studies [2,4]. The management of the data from the paper-based records for the Transportation System is time-consuming and will eventually require more resources and space for the maintenance of the records. Along with the stated issue, there is also a need for the accurate and proper information of the passengers present in the vehicle, to ensure the safety of other passengers and the vehicle and the integrity of the system. The automated system will provide paperless transport management [2,4], increase productivity [2] proper e-billing [2,4], a facility that will enable the passengers to reserve and cancel their seats [4], and, the structured data of Passengers and the other entities [2,4]. The system should use technologies such as PHP, JavaScript for building purposes and AJAX for faster access to databases for a more user-responsive experience [2].

Even though the Automated Transportation System is already built and used by the management staff, there is still a need found by the proper Software Analysis and Designing for its mutation to make the system more simple and easy-to-manage [7]. The database structure of the traditional system is complicated yet complex to manage which eventually decreases the efficiency of the system as well as requires more energy and hard work to run complex queries to extract the required data out of it. The Analysis showed that the huge system should be divided into modules for administrative and user purposes. The administrative part will include separate modules for Vehicles, Drivers, Students, Veterans and Routes. On the other hand, the User part will include Login forms, Routes and Registration modules [7].

There is a wide area of concern that still exists for the passengers and other entities present in a point/bus which is accidents. The research survey concluded that people using university transportation are concerned about the air and noise pollution they experience as well as they have a fear of accidents caused due to the uncertain traffic of the city [8]. Another similar survey found several more issues such as traffic jams and drivers' autonomy and their behavioural issues for passengers living in distant areas [9]. To tackle such issues, there is a need for an Intelligent Transportation System [10], that will have GPS installed along with the safety sensors such as Radars, LiDAR, ultrasonic and, vision-based sensors [8,10]. These sensors and technology will eventually help in gathering the real-time data and based upon that data the drivers will take better decisions to avoid the polluted routes, take routes that are safe and on which the traffic is in order such that the possibilities of accidents are minimized [8].

Conclusively, the point management system is required to be developed in a modular fashion [7], with the intelligent functionalities by using RFID [1], GPS [5,6,8,10], and other safety sensors [8,10], with faster access to the database using AJAX [2] and, proper e-billing (fee) and paperless management [2,4].