Introduction

Automation of processes is becoming essential nowadays. The emergence of technologies made it quite easier yet economical to perform manual tasks automatically by using suitable technologies. Transportation services are also getting automated in the world. The process of booking, cancellation and payment is somehow automated. Long queues of people outside the ticket counter are converted into long priority queues of objects inside the software. The rise of the need for automated systems is due to the drawbacks of manual systems requiring more effort and cost [2,4]. In some cases of transportation system automation, the reason is to reduce the waiting time of the passengers who wait for the point at their stops. The implementation of smart geo sensors such as the Global Positioning System (GPS) will eventually help the waiting ones to arrive at their stops on time. Another reason is the real-time identification of the passengers to ensure the element of safety by using sensors such as Radio-Frequency Identification (RFID) [1,5,6]. Moreover, paper-based systems are quite difficult to manage and keep the continuously increasing data. They eventually require more resources to handle the work [2,4]. While with automated systems, data processing and management will become quite easy. The system should be web-based to enable the facility of remote access and data security [2,4]. A system divided into modules works much faster than a centralized system having a single database structure to process queries [7]. [8,10] already researched that the installation of safety sensors such as vision-based, LiDAR and, ultrasonic sensors will help the driver finding the best routes with minimum probabilities of accidents and unavoidable situations.

In this report, we are focusing on the current situation of the Point Management System in FAST NUCES Karachi. The current situation of the system is quite old and somehow has problems with it. Currently, the university uses a paper-based Point Management System that registers the students by paper-based forms and the fee management is also manual. The disadvantages of the current system are mainly, long waiting queues for registration, no real-time information of points, drivers, students and other passengers in a point. This research aims to find out the relevance of the implementation of an automated point management system in FAST Karachi. We want to know how effective this implementation will be for the University Management, Students and Staff for the everyday use of points and the registration process at the start of each semester. Online Survey will be done to get the firsthand opinions of the population of FAST NUCES Karachi including the Students, Faculty and other staff regarding the implementation of an Automated Point Management System on campus. Finally, through this research study, we are going to conclude that the Implementation of the Automated Point Management System in FAST NUCES Karachi will not only enhance the security of the passengers and the vehicle but also will provide sustainable yet reliable management of the point service from registrations till fee processing and the importance of the use of safety and geo sensors in points to get real-time information remotely.