Solution for using security technology in travel services

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Abstract. The purpose of this research is to develop technology so that it can be used in transportation modes, one of which is "Travel" transportation. The method used in this security technology is the 'action research' which aims to develop new knowledge products to solve problems with direct application in the real field. The results of this security solution research proved to be effective and efficient in helping travel parties to monitor employees, the location of vehicles and passengers who were given a sense of security, comfort and trust in choosing the travel service. This is because passengers often feel restless because of lack of security facilities, therefore a security system is needed that can be a security and comfort solution for passengers. It is expected that the application of this system can be applied by travel service providers and other public transportation.

1. Introduction
Congestion that occurs in big cities is currently a major problem for us, the cause is none other than the growth in the number of private vehicles that are not balanced with the capacity of public transport infrastructure and adequate roads [1]. The number of private vehicles is due to being used with one driver, the excess of these vehicles creates additional problems such as increased traffic, increased pollution and more [2].

This made many people feel the bad impact because it was too long during the trip and for this it made the fuel consumption of vehicles increased and wasted on the streets that were jammed [3]. In addition, during the drive, many people felt the need feeling of security and comfort, so that technology was needed to overcome this. Technology and computers are very important nowadays because it can make it easier for people to do something, one of the many definitions of computers is as an electronic device designed to receive digital information (input data), perform mathematical and logical operations that are determined at high speed (processing), and provides the results of this operation (output) [4]. The technology environment is a form of human knowledge, work methods, electronic equipment, communication devices, hardware or software used [5]. In the era of increasingly advanced technology does not deny that humans need vehicles as a mode of transportation, not just private transportation, but public transportation is needed, such as transportation services "Travel" which usually connects passengers from city to another city. However, passengers often feel restless while on the road either from external problems, namely the road that causes traffic jams or internal problems such as lack of security facilities, therefore a security system is needed that can be a security and comfort solution for passengers on travel services. Research in Europe says it has calculated the toll of traffic on the highway per billion kilometers traversed by transportation modes, based on fatal accidents that occur each year in each city related to the mode of transportation and the distance traveled every year that causes many
deaths on the highway [6]. That is why Travel as a public transportation mode in Indonesia should think about the safety and comfort of its passengers while on the road to avoid dangerous things. The travel can use technology as a solution to this problem by using a car speed detection alarm [7]. Setting the alarm time is an important factor in determining the effectiveness of the system and to achieve potential benefits, it is important to estimate the effect of alarm time on driver behavior when driving [8]. In the UK, CCTV and other monitoring methods for major roads and highways are considered very important. In Wales and Scotland, each Office controls planning and funding for its supervision [9]. In addition, the addition of other facilities, namely GPS and Variable Message Sign (VMS) that can help the travel party to monitor the location of the car that is running and the travel party can provide information to the driver which way to go to avoid congestion. Variable Message Sign (VMS) is one of the main components of AITS and has been applied in many cities and regions. VMS can disseminate traffic conditions continuously which allows motorists to change their routes to avoid congestion [10] Then, using GPS with microcontroller technology so that the system can interact with the car alarm system and warn the owner, on his cellphone [11]. Therefore, this study aims to facilitate and provide a sense of comfort and safety for passengers who use public transportation services. By making a new breakthrough that can be used in "Travel" transportation.

2. Method
The method used in this security technology is the 'action research' which aims to develop new knowledge products to solve problems with direct application in the real field.

3. Results and discussion
For excellent results in providing good facilities for passengers, by adding facilities:

3.1. Speed detection alarm
Speed detection alarms with microcontroller technology use a device mounted on the car's speedometer which will issue a warning sound if it goes beyond the 100 km / hour limit, which will give a notification directly to the travel office that the car being driven by the driver A has gone from the set speed limit. The tool for using the car speed detection like the following picture.

![Car speed detection tool](image)

Figure 1. Car speed detection tool.
Here is a design picture of a car speed detection alarm,

![Car speed alarm circuit scheme](image)

**Figure 2.** Car speed alarm circuit scheme.

3.2. **CCTV**  
Installing CCTV as a monitoring tool in the car and highway monitoring can be the right solution to prevent unwanted things. With CCTV all events will be recorded properly. The following are examples of CCTV devices installed in a car.

![Example of installing CCTV on a car](image)

**Figure 3.** Example of installing CCTV on a car.

3.3. **GPS and VMS**  
The use of GPS and VMS that will be directly connected to the head office so that the head office can provide information to the fastest route drivers to get to the location if there is a traffic jam. The following are GPS and VMS devices and illustrations of users using this technology.
4. Conclusion
With the security technology solution above can be applied very effectively by the travel as one of the main facilities provided so that passengers will feel more interested and safe in choosing the mode of transportation to be used, so that with many people who prefer to use public transportation modes are expected to reduce the amount of congestion that exists and safeguards the environment. Not only that, hopefully in the future this technology can be used by all modes of public transportation in Indonesia.

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