

Smart Bus

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ABSTRACT

This paper relates to a smart bus. The smart bus of this invention provides security and safety to passengers in addition to a comfortable journey. The smart bus is air-conditioned and also has a Wi-Fi provision for passenger's comfort. An emergency button is provided under every seat in the bus, which when pressed sends information to the police station. Also, a small video recorder is placed in the bus to record the happenings inside the bus once the emergency button is switched on. Airbags for each passenger and multiple exits are provided in the bus to ensure complete safety for the passengers as well as the drivers.

Keywords: Smart Bus, Internet of Things, Passenger Safety and Security, Wi-Fi, Emergency Button, Video, Air Bags, Police

1. INTRODUCTION

The present invention relates to the field of Internet of things (IOT) in Smart Bus.

The primarily preferred mode of transportation is public transport in every city. In order to increase the number of riders in buses, comforts and luxuries are provided to the passenger by means of cushioned seats with push back comforts, Wi-Fi, etc. However, safety and security of the passengers and drivers needs to be improved

To ensure both comfort and safety to passengers and drivers, our research team has developed a smart intelligent technology that provides both. The smart bus has an explosive scanner at the entrance to check the luggage before the start of the journey. Every seat in the bus has an emergency button for informing the police in such a situation. In addition to this, airbags are also provided for passengers and drivers to ensure safety. The system also provides comforts such as Wi-Fi facility.

The invention has the following safety advantages:

1. A smart screen to display the image of following vehicle
2. An emergency switch to inform police
3. A video recorder to record on emergency
4. Air bags for safety of passenger
5. An explosive scanning system to scan the presence of explosives
6. Flame detectors with infrared thermal cameras.
7. A multi exit window

2. DESCRIPTION

The present paper discusses on a smart bus that provide safety and comfort to both passengers and driver.

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The smart bus can be used as local transport, interstate, intrastate transport to provide comfort and safety to the passenger during journey.

The smart bus comprises of air-conditioned system and Wi-Fi system for the comfort of the passenger during journey. The passenger who wishes to avail Wi-Fi facility inside the bus is required to pay a small amount to the conductor.

The passenger guide is having an audio system that will indicate the next bus stop which will help the passenger to get down at their own stop.

The driver in the bus is also provided with a smart screen on the dash board that displays the images of the vehicle coming behind the bus that are captured by the cameras provided at the backside of the bus. It helps in avoiding the accident while reversing the bus in highway.

Considering the aspect of safety there is an emergency button (not shown in the figure) at the bottom of every seat 101 which when pressed can inform to the nearest police station regarding any theft, hijack or the like. Fig. 1 shows the emergency button present beneath every seat inside the bus. To avoid the false alarm, the emergency button is covered by sliding cover 102. Additionally, a small video recorder is present in front and rear position inside the bus which will start recording video when the emergency button is pressed.

The video recording will be live telecasted inside the police station to confirm an emergency situation. Based upon the video, the confusion of the false alarm can be avoided and necessary action can be taken to rescue the passengers.

Further, the position of the bus at any point of time can be located through GPS by the RTO and police can get the information from RTO to find the exact location of bus any time when they want.

Airbags for the driver was already present in the vehicles previously but there is no such arrangement for passenger; the smart bus is having individual airbags for every passenger to avoid and reduce the damage during any unfortunate accident. Multiple exists are present in the different place in the bus to be used in case of any emergency for easy escaping of passengers which is controlled by the driver.

The smart bus is having an explosive scanning system at the entrance (not shown in the figure) to scan the luggage to avoid the presence of any explosive material inside the luggage. The scanning system can detect the presence of explosive material with simultaneous intimation by raising an alarm.



Figure 1: Emergency Button Present Beneath Every Seat Inside the Bus



Figure 2: Passenger Safety Detectors

As mentioned above the bus contains safety measure to ensure passenger safety. The passenger safety can be enhanced by including a system to prevent fire accident in the bus as shown in fig. 2. At the front portion 201 and rear end 202 are present flame detectors with infrared thermal cameras to detect the presence of flame or fire. As soon as the flame detector detects the presence of flame or fire, the suppression circuit is activated, with the immediate deactivation of the fuel line, thus reducing the risk of explosion.

The suppression circuit comprises of fire extinguishers placed at front, rear, and on the sides of the bus. These extinguishers aim at the flames using the infrared thermal cameras and require no human intervention. In the event of fire accident, the said fire extinguisher is triggered by the flame detector. The flame detector is further connected with GSM module that informs the nearest fire station for further support.

3. IMPLEMENTATION

An objective of the invention is to provide comfort to the passenger during the journey. In the present scenario customer satisfaction is the priority in the marketing or business world. Therefore, the present disclosure focuses on the comfort and luxury of passenger during the journey.

The smart bus comprises of air-conditioned system along with the Wi-Fi system to provide comfort to the passengers. A smart screen is provided on the dashboard of driver for safe overtaking and reversing.

The invention puts prominence to passenger's safety during the journey. Now-a-days safety of the passenger during the journey is the most important aspect for any country, whether it's a journey on flights, trains or buses.

This proposed invention emphasises to provide safety to the passenger if there is any accident or fire in the bus or any hijack. The smart bus comprises of safety alarm, fire extinguishers lines and multi exist windows in the bus to avoid any kind of accident.

A user guide screen is present behind each of the passenger's seat to make them aware of the journey route and facility to access the Wi-Fi. In another aspect the smart bus covers the security concern by providing the scanning system at the entrance.

4. APPLICATION

The invention as described in the drawing finds application in Automobile industry

5. CONCLUSION

Major advantages of the present disclosure is that it provides safety to passengers using the internet of things in addition to the comfort and pleasing experience during the journey.

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