Smart Bus with Passenger Safety Control and Acknowledgement

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Abstract: In vehicle majorly accidents occur mainly due to driver carelessness. Hence the effective prevention mechanism is to provide safety mechanism as well as awareness to the driver. This project introduces the methods such as RFID reader, alcohol detection, passive infrared sensor, button and how these all electronics techniques combine together to prevent an accident.

1. INTRODUCTION
The main objectives of a smart bus with passenger safety control and acknowledgement are not only to avoid loss of human life but also provide safety to passenger as well as to the driver. In bus transport system there are many causes which leads accidents such as drunken driving, driver carelessness. This can be reduce to great extent by using different electronics techniques. Alcohol detection method, RFID reader along with E-button provide awareness as well as safety to the driver. PIR human sensor is used to provide highest priority to human life.

2. PROJECT SPECIFICATIONS
1. Input voltage: 230AC
2. Input current: 500mA
3. Frequency: 50Hz
4. Operating voltage: 5V
5. Alcohol Sensor:
   Operating voltage: 5V
6. EM Reader:
   1. Frequency range: 125KHz
7. Human detector sensor:
   1. Operating voltage: 5V
   2. Distance: 20feet
8. Motor driver IC: L293D

3. BLOCK DIAGRAM AND BLOCK DIAGRAM EXPLANATION

Fig. Block Diag.

MICROCONTROLLER
This system implements different electronics technique such as sensors like alcohol sensor, PIR human sensor as well as for safety purpose E-button and RFID reader is used. Signals from all these devices are fed to the microcontroller. Then the data is compared and processed for appropriate result.

EM READER
It is use to check whether the driver is authorized or not. Because authorized driver will have EM transponder as well as unique password with him. So only authorized driver can successfully fulfill the test by RFID reader and can get access to the bus. When EM transponders come in the range of EM reader it will read the unique id number.

ALCOHOL SENSOR:
This alcohol sensor is suitable for detecting alcohol concentration of person breath. This sensor is used to measure the alcohol content present in body. MQ3 analog sensor is used for that purpose & measured data is transmitted to the controller.
alcohol is consumed by the driver then he will not get access to drive bus

**HUMAN DETECTOR SENSOR:**
Sensor is a pyro electric device that detects motion by measuring changes in the infrared levels emitted by surrounding objects. This PIR human sensor is interfaced with the engine of bus through the microcontroller as well as dc motor. Whenever human being is present in front of bus it will detect that and signal is given to the microcontroller & since to dc motor of engine to stop the bus to Bus Depot.

**E BUTTON SYSTEM:**
E button system is provided for emergency situation in buses like terrorist attack, bus hi jack. Whenever any emergency situation arrives driver will press that button and the require message is send to nearby police station or bus depot.

**WIRELESS MODULE:**
When there is requirement to send information to nearby police station or bus depot the GSM wireless module is used for that purpose.

### 4. CONCLUSIONS

In our project we have given highest priority to human beings by using PIR sensor which will detect presence of human in front of bus. We have done small prototype for smart bus which gives access to only authorized driver so we can avoid accidents.

We have developed the system for the secure transportation to passengers. Since our smart bus will provide safety and security to passengers. And also it will contribute in smart city for easy and safe transportation.

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### 5. REFERENCES:


