
Security Alarm for the Window Glass in Open Position

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Abstract

With the increase in the luxury automobiles there is a need to increase the security of the same. A lot of automatic and security features are already made available in the automobiles but still there are some basic security systems are yet not provided and there is need for them. The one such feature is automatic security alarm if the windows glass remains open when the car's occupants are not the cars. This security alarm is provided to ensure the closing of the windows glass when the car left the car in the parking. This alarm works when the car is locked using the remote key or the manual key and the windows glass remains open. When the windows glass remains open then due to the completion of the circuit for the alarm the alarm will start buzzing but when the window glass is in closed position the circuit of alarm will break or will become open and alarm will not sound. This technique will ensure more safety for the vehicles when the vehicles are parked but due to negligence the glass of any windows remains open that breach the security of the vehicle.

Keywords: *Automobile, Buzzing, Circuit, Occupant, Security alarm, Window.*

I. INTRODUCTION

Today's cars are equipped with a number of features which includes the luxury as well as security features. In the luxury features cars interior are designed in a very nice way with quality of work in each and every thing like High definition sound system with woofers, smooth upholstery. In the technology cars are equipped with Adaptive Cruise Control system, ABS, Automatic gear transmission system, engine immobilizer, theft security locks and much more. For the security of the cars theft security locks are provided which provides security in case a thief tries to open the car with an unauthorized key or by any of the other means [1]. But when the windows glass is left open all these security features will get fail. So, it is necessary to close all the windows glasses to make the parking of the car safe and let not the thief steal the expensive belongings in your car [2]. But it is not that the car driver intentionally leaves the glass open sometimes he may be unaware of the open glass and he just left the car parked with windows glass open. So, to alarm the driver there is a need to develop such a system which can detect and blow the alarm to make owner alert

about the glass which remained open. This alarm should be specific for the glass window which remained open.

The Arduino UNO is the best board to start with the electronics and coding/programming. The UNO is the very much in demand and documented board of the whole Arduino family [3]. Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 are analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), one USB connection, one power jack, one ICSP header and one reset button. It also contains everything required to support the microcontroller; by simply connecting it with a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your Uno without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again. "Uno" means one in the Italian and was chosen to mark the release of Arduino Software –IDE b 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino. The Uno board is the first one in the series of USB Arduino boards and the reference model for the Arduino platform, for an extensive list of the current, past and the outdated boards.

II. LITERATURE REVIEW

Zhao Kun et. al. in their research paper has proposed a mechanism for lifting the windows glass using a mechanism of blocks and steel wire [4]. The important feature of this mechanism is that it can be pressed down to some distance if any body part gets entrapped in between the glass and the upper portion of the window to prevent the mis-happening specially in case of small children. In this mechanism but there is no alarm system provided which can buzz in case the glass remains in open or is not closed fully after the car is locked. M. Sathish, V. K. Harikrishnan, Prof A. Ramakrishna, P. Kavim in their research paper proposed a system of windows automatic operating system using the rack and pinion, oxygen sensor and sound sensor [5]. These sensors detect the amount of oxygen inside the car and also the sound sensor senses the sound of the occupant. If the amount of oxygen is less inside the car, then the system will automatically operate the windows using the rack and the pinion arrangement for the admission of more oxygen into the car and keeps the window in the same position as it was that is if the glass of the window was fully closed or slightly down then it will return to the same position again. This research does not provide an alarm system for the automatic closing of the windows in case the windows glass is left open and the car is parked which lead to the breach in the security of the car but the present research is advancement of the above research and this research can be implemented either in combination of the above research or it can be implemented independently.

III. METHODOLOGY

The security of a vehicle breaches when the window glass of a vehicle get remains open after locking the vehicle with high securities keys [6]. So, to provide security in this regard the window glass alarm system has been provided. In this system each windows glass is provided with an

alarm. The alarm gets activated only after the car is centrally locked [7]. It will buzz only if the windows glass is open and won't buzz if the windows glass is closed. It happens because the circuit of the alarm system is always in closed form and it remains in closed form till the windows glass is open but it becomes open circuit when the glass is closed or slides to the top end because it breaks the circuit by pressing the wire of the circuit. The circuit flow of current is controlled by a microcontroller Arduino Uno. Microcontroller takes the input from the ECM for the centrally locking of the car then microcontroller flows the current through all the alarm system of the car [8]. The alarm buzzes for that windows glass which is open and does not buzzes for which the glass is closed.

For making the circuit open by pressing with the windows glass a button can be provided on the top of the windows which gets presses on fully closing the glass and thus breaks the circuit or makes the circuit of the alarm system open and alarm does not sound but when the glass is not fully closed the button is not pressed and the circuit of the alarm system remains closed and alarm start buzzing when the car is locked using the remote control or using the keys [9]. Figure 1 illustrate the flow chart of the system.

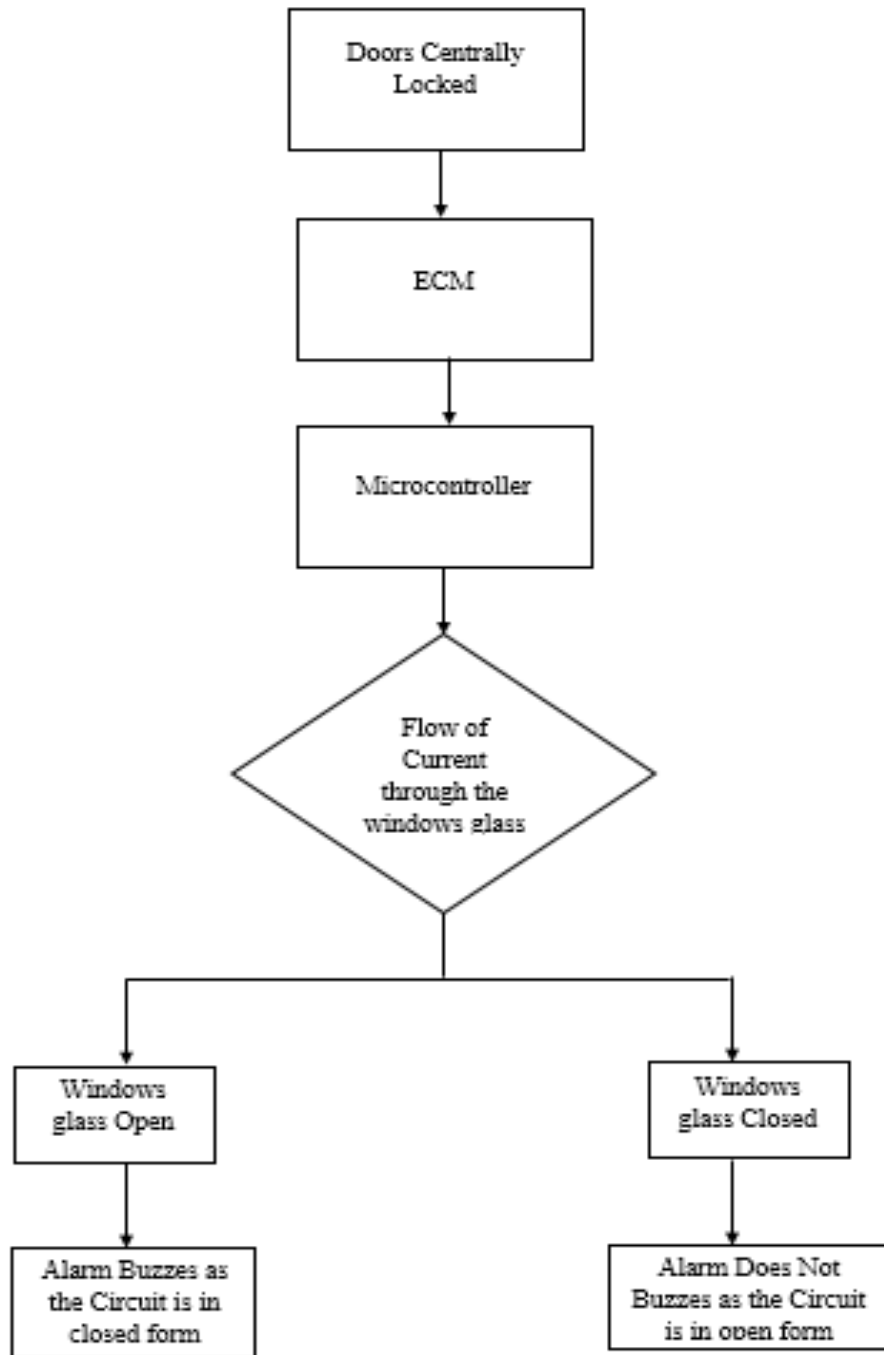


Fig. 1 Flow Diagram of the Windows glass alarm system; buzzes if the glass is in open position, Silent; when the glass is in closed position

IV. RESULTS & DISCUSSION

As the car is centrally locked but still some systems keep on working like car safety lock system which continuously monitors the unauthorized access to the car. Now when the car is locked, this information is sent to the ECM and further microcontroller examines the windows glass position by flowing the current through the alarm system. This flow of current makes the alarm sound if the windows glass is in open position but does not produce sound if the windows glass is in closed position or is completed closed till the top end which presses the button provided on the top making the circuit open to stop the current flow for that circuit. This will also work if the windows glass is broken by any miscreant or robber or in any of the case for the emergency situation.

V. CONCLUSION

This technique will be very much beneficial for the automatic signaling for the windows glass left open which breaches the security of the vehicle. As a car is fully occupied with all the security features like bullet proof glasses, theft security, unauthorized access but when the glass is left open then it will be security breach. So, this system will work here very efficiently. Secondly, in case of breakage of the glass by any of the means i.e. for theft, emergency there will be an alarm for the same which will alert the car owner.

VI. REFERENCES

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