ABSTRACT

Car power windows introduced by Ford motors for the first time in the year 1941 in their car model Lincoln custom and Packard custom super 180. Power door locks were introduced on the luxury Scripps-Booth in 1914, but weren’t common on luxury cars until Packard reintroduced them in 1956. Nearly every car model today offers this feature as at least optional equipment. The conceptual literature review contained theories related to the evolution of vehicle windows and locks control for improving vehicle security. The Empirical literature reviews mention the operation of related system that operated by rain. The methodology applied on this research questionnaire, interview, documentation, observation and Ethical consideration. The system composed with both power and power locks component which are system control module and remote module which receive information remote key fob and transform it into action. Window regulator which composed by window motor and regulator machine with different arms that control the position of car window at certain angle. Lock motor, switching device and locking mechanism component which control locking and unlocking vehicle doors. The purpose of this study is to identify those different regimes of behaviors and to explain the observed trajectories. Remote is used to lock and raise car window as opposed to old system that was only operate central locking system, and electrical window which was only being operated while vehicle ignition key is in ON position for providing easy ways of controlling vehicle window to overcome the problem of thieves who used to Stoll in the car while driver forgot to close the windows. To conclude this research through the goals and objectives I have sated at the beginning of this research, I have achieved them. It is working properly and controlling both windows and locks position at a distance up to 100 meters.

Key word: power window, power door, control module, remote key fob, remote receiver, window regulator, door locks, door switch.

INTRODUCTION

Power door locks (also known as electric door locks or central locking) allow the driver or front passenger to simultaneously lock or unlock all the doors of an automobile or truck, by pressing a button or flipping a switch. Power door locks were introduced on the luxury Scripps-Booth in 1914, but were not common on luxury cars until Packard reintroduced them in 1956. Nearly every car model today offers this feature as at least optional equipment.

Early systems locked and unlocked only the car doors. Many cars today also feature systems which can unlock such things as the luggage compartment or fuel filler cap door. It is also common on modern cars for the locks to activate automatically when the car is put into gear or reaches a certain speed.
Long gone are the days of manual, crank-down windows. While they still do exist in some new models and many older models still on the road today, more and more manufacturers are adding power windows as standard equipment on their new cars. The convenience of power windows is undeniable and one many of us would rather not do without. With many new car models equipped with additional features as automatic up-and-down functionality, the use of our car windows has only become quicker and easier. For instance, in the 1954 model, Ford also introduced full four-door power windows in sedans in 1954. The full-sized 1955 Nash "Airflyte" models featured optional power windows.

MATERIALS AND METHOD
The chapter discussed in details the methodology that was applied to collect data from the field of the study. It includes the description of research design, target population, sample, sampling techniques, instruments and data analysis techniques as well as validity and reliability consideration.

STUDY DESIGN
Case studies
During this study I used this method for generating data involving up-close, in depth and detailed information for this project, there are another project quite similar with this one I referred to and do modification to achieve real remote-controlled vehicle door window and locking system.

DATA ANALYSIS AND INTERPRETATION
This chapter will consist of specification of design and operation of each component that found on our system called remote controlled vehicle door locks and power window system. Those components are divided into two main parts which are, Remote control parts that include: hand held RF remote key fob and its module (input) and Arduino UNO (microcontroller module) processor. Working parts that include: Wires (control current wires and working current wires); Fuses with difference designation; Relays; window motors; locking motors; flashing light; vehicle horn; LED and battery.

WORKING PRINCIPLE OF REMOTE-CONTROLLED VEHICLE DOOR WINDOW AND LOCKING SYSTEM
Remote controlled door window and locks is operated remotely while driver is not inside of vehicle and without ignition key being inserted inn.

locking operation press button, A on remote pin D0 of RF remote module receive the signal and energize pin A0 of Arduino. When pin A0 become high other pins become low but pin 9 will be energized and cause relay 8 (RL8) to close the connection from fuse (FU) pass to RL9 and ground connection through RL10, at the same time when RL10 is energized the RL11,12,13 and14 will be energized to close from car system (CS) circuit to remote system circuit.

At the end of this action when button is realized RL16 and RL15 will be energized through Arduino pin 10 and 11 and connect current from fuse 1 (FU1) and (FU4) to close both hazard warning light and vehicle horn for one second to warn user that vehicle is locked.

Window roll up operation press button A and hold it after 1 second on remote, D0 RF remote module become energized transmit signal to Arduino then pin 7 of Arduino
energize relay 1 (RL1) and close connection from fuse (FU) then current pass relay 2 (RL2) and ground connection through RL 3. When RL1 became energize at the same time RL4,5,6 and 7 become energized to switch circuit from car system (CS) circuit to remote system circuit. At the end of this action when button is realized RL16 and RL15 will be energized through Arduino pin 10 and 11 and connect current from fuse 1 (FU1) and (FU4) to close both hazard warning light and vehicle horn three times to warn user that vehicle is locked.

**Vehicle allocating** press and hold button D to recognize the location of your vehicle when button D is pressed pin D3 of remote control module receive signal and transmit signal to Arduino and then Arduino energize relay 15 and 16 to switch current from fuse and to hazard warning system and vehicle horn. Horn will be energized for only one second but hazard warning system will be energized until the time you realize button.

**Design process**
The project will be carried out through combination of various processes according to the component that is going use.

**Overview of design circuit**
remote controlled vehicle door window and locking system Circuit and working principle with four window motors for rolling windows, four locking motors for locking the doors, horn for sound making (acoustic signal) and four direction indicator lamp for visual signal display.

Fig. design of remote-controlled vehicle door power window and locking system
RESULTS AND DISCUSSION
During realization and testing of this system the result shows that, the system was possible to implement and purchased to affordable price with the efficient expected of 87%.

As a result, I conclude that I can save the time and money, by using remote controlled vehicle door window and locking system than using traditional or manual method of using hand. In this system we may use control switching door and raising or lowering window as it opposed old system of using handle of push button. The operation is faster and is belied as it gives out a signal after any action done. So, if we got on continuous work on system, we got greater output in very short time.

Conclusion
Remote controlled vehicle door window and locking system is a system that combine both window and locks of a vehicle to be controlled as one system by means of remote. Here one remote is used to lock and raise car window as opposed to old system that was only operate central locking system, and electrical window which was only being operated while vehicle ignition key is in ON position for providing more easy ways of controlling vehicle window to overcome the problem of thieves who used to Stoll in the car while driver forgot to close the windows.

LIST OF ABBREVIATION AND ACRONYMS
CS: Car System
D: Receiver module pin
FU: Fuse
LED: light Emitting Diode
RL: Relay
RF: Radio Frequency

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REFERENCE


