

Vehicle Key in Ignition Lock Reminder

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Abstract— Most of the absent-minded people forget to remove the engine key of motorbikes in hurry, it requires attention to solve this issue. The purpose of this study was to find out a way to prevent such laxity. The system would help to give audible as well as GSM indication when motorbike park with the engine key in ignition lock. With this system one can get rid of the habit of keeping engine key in ignition lock. Further improvement is needed to reduce such laxity.

Index Terms—Ignition lock reminder

I. INTRODUCTION

Systems for reminding the motorbike rider who is leaving his bike key inadvertently left behind in the ignition switch. In particular, this system relates to warning systems for reminding the outgoing motorbike rider of his left-behind engine key before he goes away from the bike. In order to start and stop the motorbikes or specifically its engine, the electrical system must be energized or de-energized. For this purpose, a key switch commonly called "ignition switch" is included in the motorbikes electrical system. The engine key is to be inserted in a keyhole of the key switch and rotated to different positions for controlling the electrical signal. There are three positions of key in the switch ON, OFF and LOCK respectively. To start the bike, the rider must insert and rotate the key to its ON position. when leaving or parking the bike, he is expected to rotate the engine key back to its OFF position or LOCK position and pull the key out of the keyhole and go with the key in his hand. The sensor sensing whether a person is present on the motorbike; if a person is not present on the vehicle and leaving engine key in ignition lock then the reminder reminding for engine key.

II. LITERATURE SURVEY

One disadvantage of present implementations of key-in-ignition sensing is that the mechanical contact employed has a high failure rate due to oxidation of the contacts. Another disadvantage is the increased complexity of an ignition switch which incorporating the mechanical key-in-ignition contact and its associated wiring.

Some vehicles have anti-theft system using a transponder carried on a key to identify that an unauthorized key has been placed in ignition before allowing vehicle to start .one disadvantage of such system is that if the engine does not start, the operator does not know whether it is the engine or the anti-theft system that is malfunctioning. It would therefore be desirable to eliminate the mechanical key-in-ignition

mechanical switch and still provide function of a key-in-ignition electronic warning system.

III. PROPOSED SYSTEM

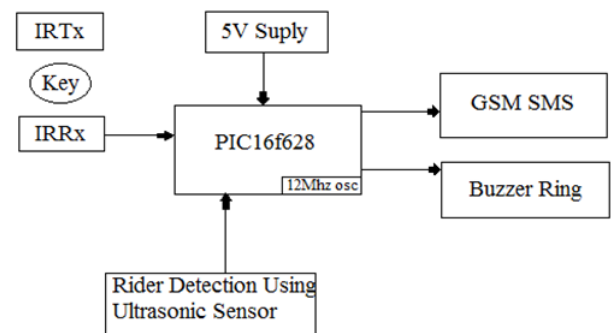


Fig. 1. System architecture

IR proximity sensor is placed near the key to detect whether the key is inserted in keyhole or ejected from keyhole. When the absent-minded rider forgets to take the engine key out of the keyhole and he moves out leaving the engine key behind in the keyhole of the switch that presence of rider is detected by the proximity ultrasonic sensor and signal is sent to microcontroller to see whether the key is inserted or ejected from the keyhole. If engine key is inserted in ignition lock then the microcontroller gives audio indication for a certain period of time. Even if the rider not acknowledge by the sound due to some reasons, it gives GSM indication continuously until the engine key ejected from the keyhole. After removal of engine key the IR transmitter and receiver get contacted together and the microcontroller stops its function for further actions.

IV. RESULT AND DISCUSSION

The eq. 1, shows the IR sensor condition with the help of NOR logic.

$$\overline{IRT_x + IRR_x} = \text{Key Present in Ignition Lock} \quad (1)$$

The ultrasonic distance range can be calculated by eq. 2, given below,

$$\text{Ultrasonic Distance} = \frac{\text{Distance between Trig and Echo Pulse}}{58} \quad (2)$$

If the distance is less than 10cm then the rider is present on the motorbike so mathematically it can expressed as shown below,

$$\text{Ultrasonic Distance} < 10\text{cm} = \text{presence of rider} \quad (3)$$

The ultimate system equation can be achieved by the AND operation of eq. 1 and 3 we get,

$$\text{Key Present} * \text{Presence of rider} = \text{GSM \& Buzzer alert} \quad (4)$$

Thus the system can define in mathematical representation.

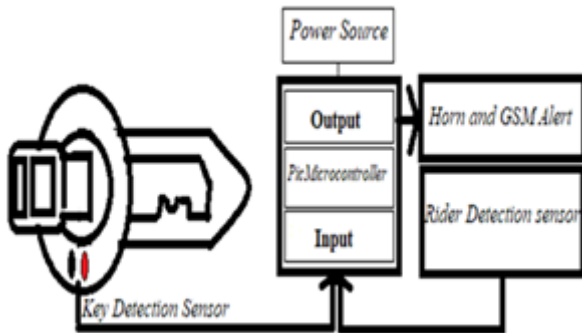


Fig. 2. Implementation of system

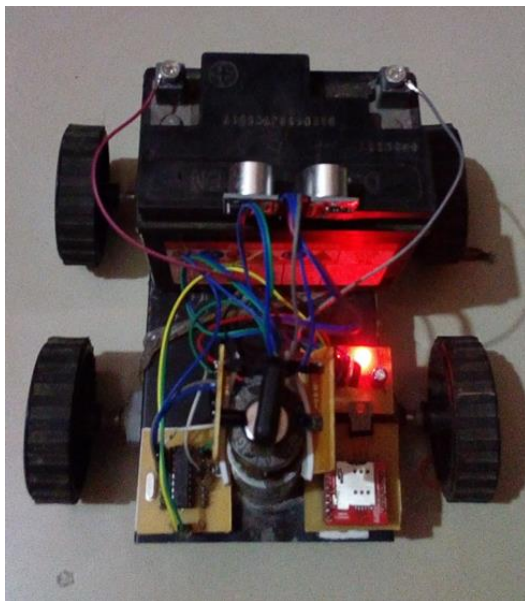


Fig. 3. Prototype of the implementation system

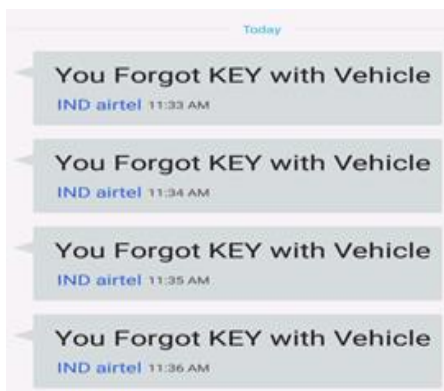


Fig. 4. Message received

The below flowchart is concerned with the system. By providing the graphical representation, one can identify the different elements of process and understand interrelationships among the various steps.

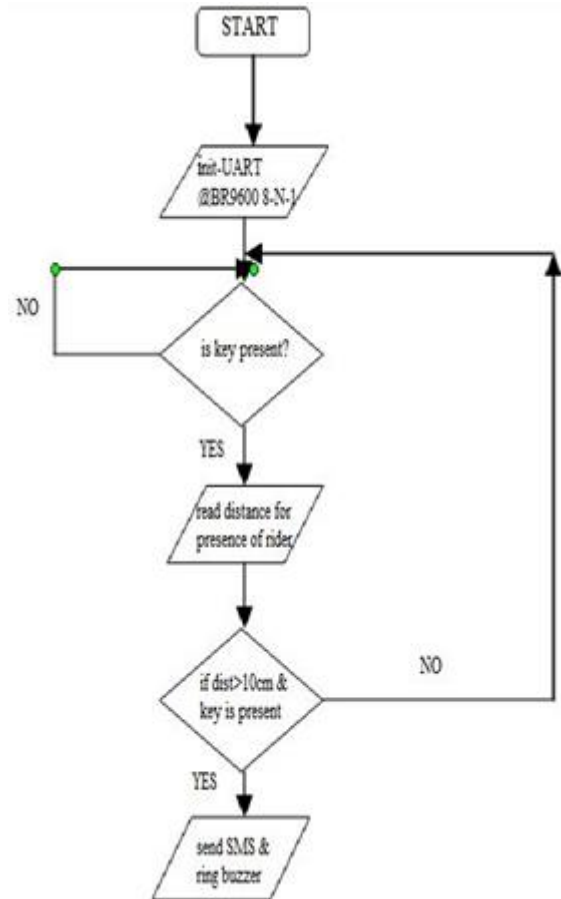


Fig. 5. Flowchart of the implemented system

V. CONCLUSION

The problem of forgetting the key in ignition lock can be eliminated forever with the help of the proposed system device. It will definitely reduce the human efforts. A cheap and compact design overcomes the issues related to space and implementation. Due to the alarm of buzzer and GSM, the chance of forgetting key with vehicle is reduced. The system implementation is very easy that everyone can set it up in the vehicle for a safety purpose.

ACKNOWLEDGEMENT

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ACRONYMS

GSM – Global System for Mobile Communications
 Originally Group Special Mobile,
 IR – Infrared

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