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Effective Method of Bike Starting Using Keypad for Security against Bike Thefts

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Abstract: ***In this research we have designed a prototype for an enhanced method of bike starting. In regular course we start a bike using a key. It may have possibility of losing a key. There is also a danger of bike thefts. Therefore we have designed a prototype which allows the user to secure his bike.***
This system includes a two way security system i.e. a bike key and a keypad. When the user place a key on bike for starting the prototype will ask for a unique password. Then user must have to enter correct password if user fails to enter the correct password then system responds it by turning on a siren. After entering a correct password the bike will start. Although anyone having your bike key he will not able to start your bike without a unique password. Thus the system ensures the better security of bike.
Keywords: Dc Motor, ignition lock, Key, Keypad, LCD, 8051 microcontroller.

I. INTRODUCTION

K. Dinesh Kumar et al. proposed a system based on GSM technology. It consists of a keypad based first tier security system. Owner is provided with a password, if any person enters a wrong password for three times, the integrated buzzer system will get activated. The second tier security level consists of a smart vehicle ignition control method which operated according to the SMS sent by owner. This system encloses of a vibration sensors which detects suspicious activities or theft attempts. If sensors detect any activity SMS is sent to the owners mobile.

The owner can be able to reply this situation by sending SMS which is received by smart ignition control mechanism. This mechanism respond it by turning vehicle engine off.[1]

Shrikar Waghet al. proposed a system is based on 8051 microcontroller. The principle concept of designers is to make a digital system which can replace existing mechanical lock and provides betterment in security system in bike. The system uses wireless bluetooth connectivity.

The user can enter a password through android application. If entered password matches with a system password it will starts a DC motor in prototype.

If user enters a wrong password busser will turn on and security breach is displayed on LCD display. [2]

Nitin Kumaret al. introduced a security system which proposes security against fuel theft. It is basically a fuel level monitoring based security system. If a person try to steal fuel from vehicle system it will respond by immobilizing the engine and enabling a loud alarm system. Also in addition to the engine immobilizer and alert owner can also get warning via SMS about the theft attempt. Then user is able to immobilize the engine remotely using SMS. [3]

Pritpal Singh et al. proposed advanced security system composed of embedded system integrated along with GPS for precise vehicle location tracking which is both online and offline and GSM for alerting purpose. An embedded core is developed using 8051 microcontroller.GSM system also provides another benefit of reflex alert during accidents. In accidental situation system will automatically send an alert message to relatives or friends.

The collaborative and multiple preventive measures like vehicle immobilization, , electric shock system (installed on steering wheel) , fuel supply cut-off and paint spray system which are installed in the vehicle controlled by user through mobile. Also the user can control vehicle lock system (lock/ unlock) via SMS. [4]

When the user place a key on bike for starting the prototype will ask for a unique password.

Then user must have to enter correct password if user fails to enter the correct password then system responds it by turning on a siren. After entering a correct password the bike will start.

Although anyone having your bike key he will not able to start your bike without a unique password. Thus the system ensures the better security of bike.

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II. BLOCK DIAGRAM OF BIKE SECURITY SYSTEM

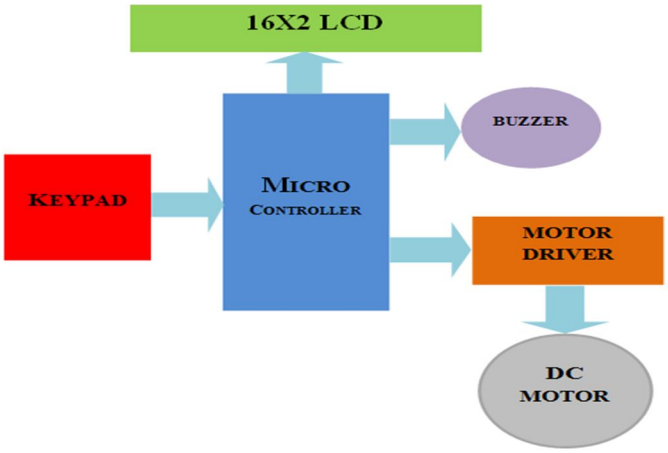


Fig:1 Block diagram of bike security system

The above figure shows a block diagram of a bike security system. In this circuit diagram 8051 microcontroller, Ignition lock, DC motor, motor driver, Keypad, LCD display, buzzer are used. Here 8051 microcontroller used as a control system of our research. Dc motor replace by bike. keypad used for enter password, LCD is used for display status of our activity, buzzer used for indication of password status if password are wrong then buzzer will be turn on.

III. CIRCUIT DIAGRAM OF BIKE SECURITY SYSTEM

The above figure shows a circuit diagram of a bike security system. In this circuit diagram 8051 microcontroller, Ignition lock, DC motor, motor driver, Keypad, LCD display, buzzer, resistors and capacitors are used. While doing this prototype we have replaced an actual bike by a dc motor. When the bike user inserts a key in the ignition lock of a system and when it turns on, it will ask for a unique password by displaying a message on LCD display as “Enter Your Password”. At that time user must have to enter a password which is initially defined in a system coding. We have provided a 4X4 keypad in order to enter a password. For which port 1 of a microcontroller serves as an input port and microcontroller is used to take input from keypad. Now there are two conditions, in first condition if the password entered by the user is matched with the predefined password in a coding then the motor driver will provide a sufficient current in order to turn ON a DC motor in a system and in actual scenario this action will start a bike. And in second condition if system user enters wrong password then the LCD display will displays a message as "Wrong Password". But this condition will causes a security breakdown and bike security system will immediately call for a security alert. For this we have provided a buzzer which will provide a proper alert of a bike theft.

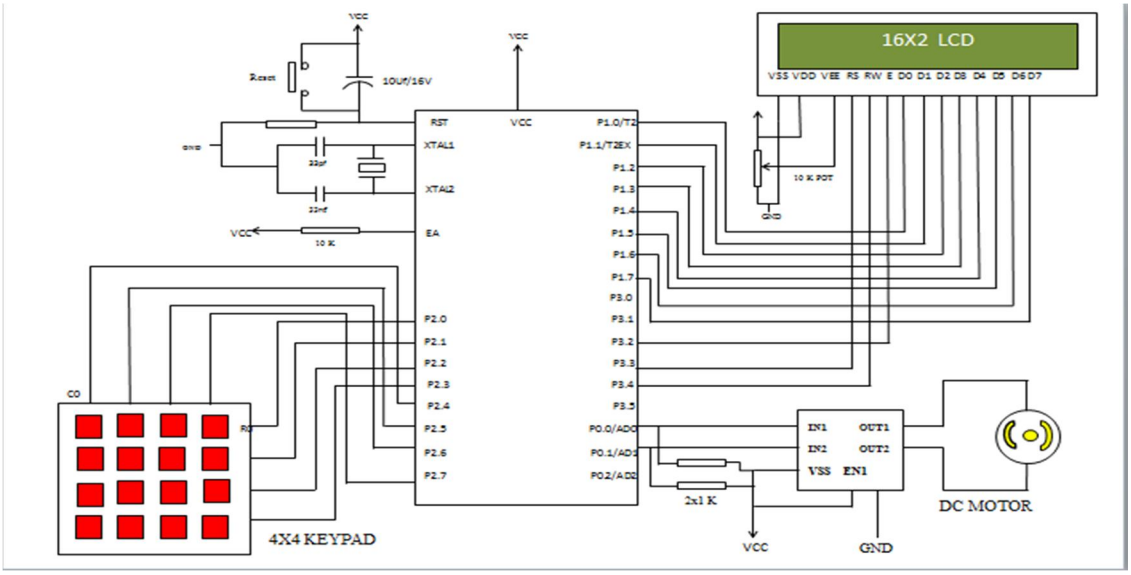


Fig:2 Circuit diagram of bike security system

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IV. Flow chart

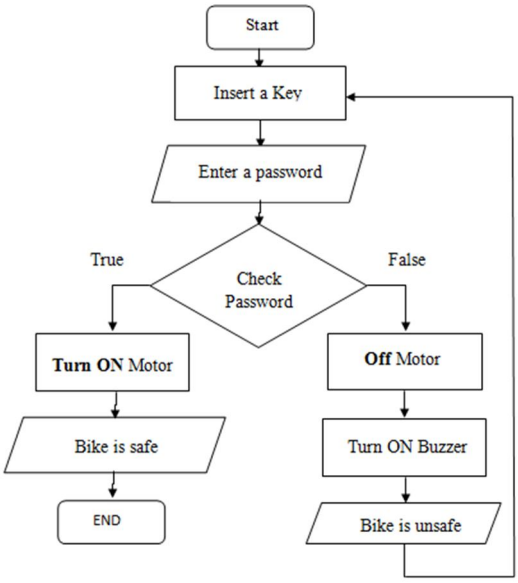


Fig: 3 Flowchart for Working of Bike security system

The above figure shows working process of bike security system. In this flow diagram check given condition if condition is true i.e password will correct then bike will turn on. Otherwise bike will not start and buzzer will turn on which is indicate as wrong password.

V. FUTURE SCOPE

1) A prototype such as this can be implemented in motorcycles and automobiles with four wheels
2) An important feature of this prototype is the ability to be easily incorporated into E-vehicles, which will be an important part of the automotive industry in the near future
3) By incorporating biometrics, voice recognition, and image processing technology, this prototype can enhance its security features which will redefine automobile security systems.
4) The core level integration of this prototype will reduce the size of the device, making it more useful for complex vehicle designs.

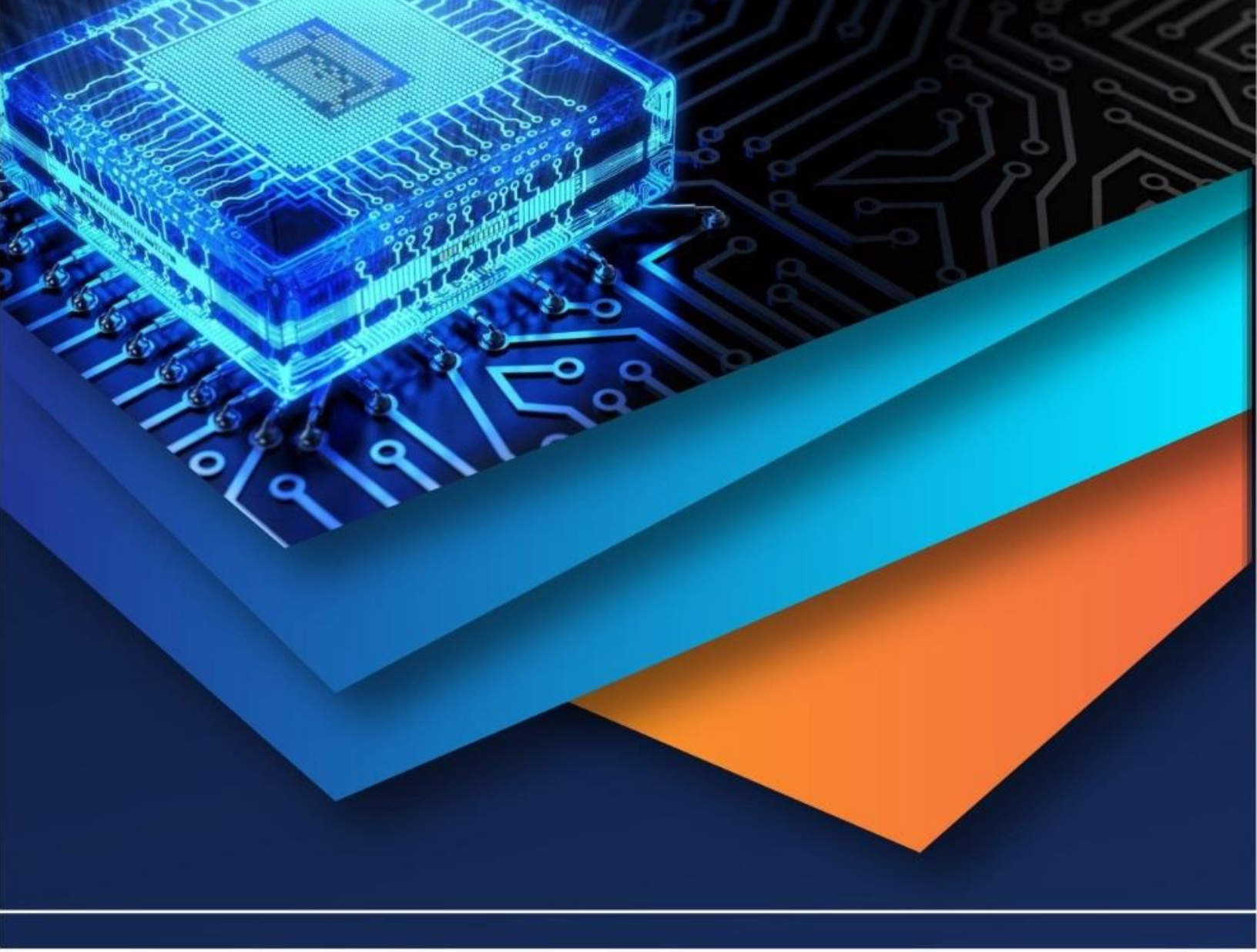
VI. CONCLUSION

Today mobility industry is connecting an innovation dots all-over the globe. Therefore traditional security methods are far left behind. The "Effective method of bike starting using keypad for security against bike thefts" provides an intelligent, efficient and reliable method of bike security. This system provides dual security including traditional ignition lock. The combined mechanical and electronic system provides an A grade security for one's bike. Unless and until user provides a password, bike will not start hence user defined password ensures a better security. Based on detailed system observation we have concluded that it can be implemented on any bike with required and proper modifications in them. Also this system is available in low cost so that majority of people can afford it. About 100% bikes support this system with minor modifications and gives faster and effective results to our customers.

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