



A Survey on Keyless Security System for Two-Wheelers with Advance Automatic Features

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ABSTRACT:In this project, we present an advanced security system for motorcycles. As there is tremendous increase in sells of motorcycles but also the counter of stolen vehicles rapidly increases. Nowadays usually to prevent theft normal locks and wireless key, these are the two options available in the market. But our proposed system is designed such that there is no need of any lock. Our proposed Security System is totally based on the Password approach in which if password is correct then automatically gets start and ready to drive but if password is incorrect then it is impossible to start motorcycle. All these messages displayed on LCD. The advance features like automatic side stand, headlight and foot rest control also included in system as value added features which provides little safety and automation. In this document a simple solution to the problem has been presented. This automated scheme is used by any motorcycle and provides ample incentive for pretty thieves.

KEYWORDS: Keyless Security System, LCD (Liquid Crystal Display), Password.

I. INTRODUCTION

In India, the total number of vehicles stands at around 100 million at present but is expected to touch the 450 million mark by the year 2020. Remarkable progress in the automobile industry shows a rapid rise in the number of motor vehicles across the world in the last 2 decades. These day's vehicle robbery cases are higher than any other time, it has gotten to be fundamental to give a vehicle a superb security with the main solid hostile to burglary gadget. With this tremendous increase in the number of vehicles on the road, there has been an increase in the number of crimes involving vehicle theft. In the capital city of Delhi alone there is a vehicle stolen every 36 minutes which amounts to around 40 thefts per day.

Even with improved security systems and increased awareness among vehicle owners, vehicle theft has not yet been curbed down to a significant measure. Because of the costly nature of motor vehicles, owners are now being forced to spend more and more money on insurance and other policies. Currently, the only type of safety product widely available for motorcycles are physical locks only such as padlock, wheel lock, chain lock and other physical lock, which tend to fail most of the time due to the fact that they are easily picked or broken. Another type of lock is electronic lock, which is structured of alarm system and disabler system or immobilizer. The alarm system buzz sounds when the vehicle is tampered with and indicates that theft is in progress. In this document, a simple and economical scheme has been outlined.

We have seen that there are many small issues associated with motorcycles related to its security and safety. Then we are tried to search the reasons, we get the many reasons behind how these things are happened? After that we found that, there are small reasons behind the rider safety and we will eliminate that reasons by adding value added features like automatic side stand control, headlight control, footrest control, and many more. Thus we are trying to solve these

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safety issues associated with motorcycle. Because Most of times people forget to lift the stand and there are many chances of becoming the accidents also we will automatically control headlight by using LDR.

II. LITERATURE SURVEY

In [1] proposed a stolen vehicle recovery system. The system ensured increased safety and credibility. It used C8051F120 microcontroller and a vibration sensor. The vehicle owner gets the message regarding the vehicle location at specific intervals through GSM.

In [2], the hardware and software of the GPS and GSM network were developed. The Proposed GPS and GSM based System has the two parts, first is a mobile unit and another is controlling station. In the study of vehicle location with GPS and GSM based system, it shows that the system is working but only a fraction shows the system's accuracy in an environment.

In [3], the alarm system buzz sounds when the vehicle is tampered with and indicates that theft is in progress and it is also designed to stop engine if the position of sensor and key is not at the right place. The systems only unlock engine function by sending sequence of instruction to controller via SMS thus the system is an immobilizer.



Fig 01:- Mahindra Centuro Key

In the market new bike launched in 2014, which have good security system that bike is Mahindra Centuro. This motorcycle manufactured in India by Mahindra Two Wheelers. The Centuro gets a remote lock with a flip key, the remote lock just like four wheelers. The main drawback of that system is not efficient and expensive. Before this, peoples are using general physical locks.

III. PROPOSED ARCHITECTURE

In this proposed system the idea behind this scheme is to incorporate two functions security system and automatic features that will help the motorcycle owner to keep tab of his motorcycle. The proposed system consisting of LCD display and keypad as security system and side stand, headlight and foot rest control as features. The whole operation is performed using Arduino board.

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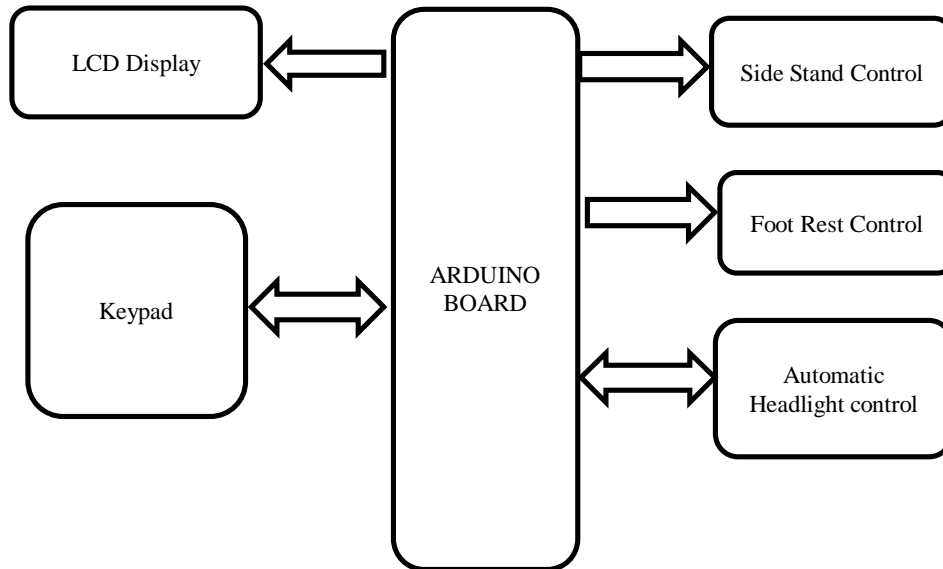


Fig 02. Proposed System Architecture

For this proposed architecture the essential prerequisite hardware components is as follows and each hardware components description is given for the same.

a) Arduino Mega 2560

The Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

b) Liquid Crystal Display

The main purpose of LCD in this proposed design is to display the information like password and welcome message. The configuration of the LCD used is 16*2.

c) Motor

A motor is a mechanical device which uses electrical power to work according to the application. Here in this project a stepper motor and DC motor has been used perform the operations like side stand and foot rest control.

d) Light Dependent Resistor

LDRs are very useful especially in light/dark sensor circuits. Here we used this to control the Headlight.

e) Keypad

A keypad is a set of buttons or keys bearing digits, symbols and/or alphabetical letters placed in order on a pad, which can be used as an efficient input device. Here to enter a password it is used.

IV. FLOWCHART

Figure 03 shows the flow chart of the proposed system. The whole system is depends upon the main switch (ON/OFF switch) which controls the ON and OFF operations of the system.

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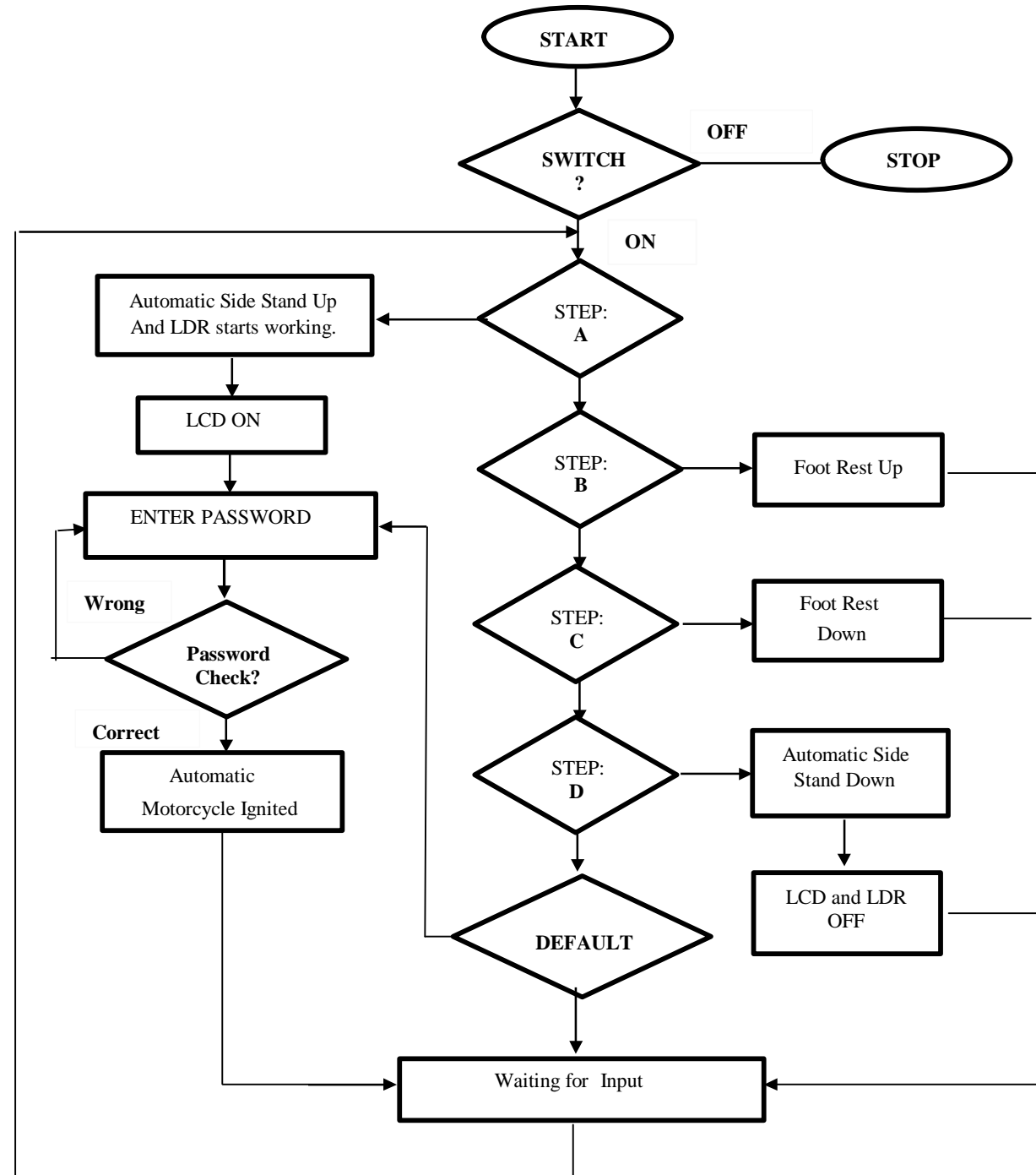


Fig.03 Flowchart of System

As system is ON, when we press the key 'A' from the matrix keypad the process of automatic stand up will be going on and LDR starts working. After some time LCD will be ON. It means that after pressing 'A' the Arduino sends the various control signals to the stepper motor and it will rotate 90 degree and stand will automatically lifts up. After some time the LCD will be ON and shows the message as "ENTER A PASSWORD". In response to that we have to enter our unique password from matrix keypad. If password is correct then the control signal from Arduino is send to the DC



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motor and motor will rotate it means motorcycle is ready to start and drive and after some delay the LCD will be OFF. If the password is wrong then LCD will show the message as "WRONG PASSWORD" and "RETRY". The automatic control of Footrest is done by pressing the key 'B' and 'C'. When system is ON and we press the key 'B' from the keypad the footrests will be open and by pressing 'C' footrest gets closed. The side stand will be down by pressing key D and the LCD and LDR stops working will be off. The whole operation will be repeat by pressing one of the default key from the matrix keypad. System will be OFF by main switch.

V. ADVANTAGES

- The proposed model is efficient and economical for user.
- Password function improves security of the system.
- Avails the better controlling of the motorcycle.
- The system will be flexible by using Arduino platform.

VI. CONCLUSION

The system that has been developed provides ample protection against theft. If the password function is used effectively, it basically removes the threat of theft by adding an extra layer of security. The other obvious shortcoming is if the thief is able to detect and destroy the Anti-theft module before it can be used. This can be mostly avoided by placing the module in some hidden place, of which there will be plenty if the vehicle is a large one.

A function can also be added by which an alarm can be set by the owner to monitor the side stand is up/down position. With the addition of more sensors, this module can be further improved or advanced by adding more functions; like one, which will notify the owner if there is an attempt to destroy the Anti-theft module. The main focus has been to keep this system simple without compromising on its reliability.

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