Automation of Shutter

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Abstract- In this paper, we propose a Automation of shutter for an industrial as well as domestic purpose from an Android /IOS device based on NodeMcu. Automation of shutter model has been recalled in the first stage. In the second stage an URL/Application has been developed based on the android/IOS system. The different diagrams of the project have been presented. Different connections have been developed to allow the communication between the controller , the web server, the and the industrial / domestic Shutter components. The URL/Application has been installed on a Smartphone, a web server and a controller to order the shutter. The experimental results are successful.

*Keywords*- NodeMcu, industrial/domestic shutter.

I. INTRODUCTION

Automation of Shutter is the automatic control of the shutter /door/windows in your home/ workplace.This shutter is developed with the combination of advance Android technology and embedded system. The main hardware components used in the shutter is Node MCU controller This device is connected to the Internet, which allows it to be controlled handy. Automation of Shutter , can be one controlled manually via remote , an app or voice assistant. The application in the Mobile phone contains a number of buttons to control the shutter movement i.e. up and down.It also detects the time required for the shutter to perform ,with this feature you can detect any defect or maintenance issue in your shutter. The use of App controlled   shutters in commercial as well as industrial will make opening and closing of shutters easy. Our design provides additional features like the use of sensor in order to reducing number of accidents occurring due to mechanism failure.

Automation of shutter makes it more convenient ,secure and can even save you labour cost and most importantly time.

II. METHODOLOGY

Firstly, the main components consist of Node mcu, 4-channel relay board, motor and our shutter. The power supply will be given to the node mcu with the c++ program, the node mcu is then connected with the relay which then controls the operations of motor. An app or a web interface will be used to control the node mcu.
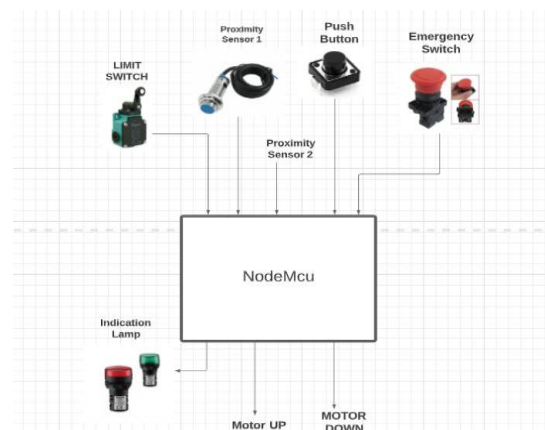
The above picture shows the basic architecture/block diagram of the project. The push buttons are used for starting, stopping and reversing the direction of the motor. Proximity sensors are used for sensing the shutter. Limit switch is used for maintaining the speed of the motor. The output consists of moving the motor up, down and indication lamps. The indication lamps will be used for indication when the motor is turned on or is stopped.

III. BACKGROUND AND RELATED WORK

People for ages now have been operating shutter manually which is not a very efficient process in many ways i.e., it requires energy and can also have jamming problems. Especially for old age citizens, they might have problem operating the shutter manually.

In this project will mostly be using the device Node mcu, but we can also use Arduino and PLC (Programmable logic Unit). PLC is not being used here as its price is high, but it can easily be used for industrial purpose. PLC is more efficient easy to use, it can be implemented using the ladder logic. We are using Node mcu because of its low price and its reasonably good features. Node mcu also has Wi-Fi connecting feature, thus making it able to access control through a smart phone.

IV. FUTURE SCOPE

If we want the project to be more, we can use PLC, which has a higher price range, but is a better choice for industrial use. Also, we can use internet and cloud computing for being able to control the controller from anywhere in the world. Furthermore the motors are already being used for shutter, but being able to control it through a smart phone has a bright future.

V. CONCLUSION

This paper discusses that we are able to create a low-cost automatic shutter system which can be controlled through a web interface or an app, therefore making it convenient and efficient for users of shops, buildings, etc.

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