RFID and Password based Door Lock System using Arduino

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Abstract:- This door lock device is managed through an Arduino MEGA and makes use of RFID and a password. It is used as an electrical lock on doorways and cupboards, amongst different things. In actual life, safety structures are utilized in cyber crime safety device, instructional society's, homes, schools, offices, and industries. The purpose of this look at is to create a clever domestic safety device that contains RFID and a keypad. RFID is an ID card reader that reads the cost of an ID card and Arduino MEGA. If the ID card reader is enabled, Arduino will assist you to kind a password at the keypad. If the password is correct, the lock fashion solenoid could be unlocked. If the password is false, the solenoid could be locked. The domestic automation digital door lock device can talk with a safety control device for customers and clever cards. card with a chip. It's easy to apply and accept, and it is extra stable in actual life. Then there may be the traditional password, that is extra excellent and stable for human life. The whole device is managed through an Arduino microcontroller.

Keywords:- Arduino, RFID, Solenoid Lock, 4x3 Matrix Keypad.

I. INTRODUCTION

A digital door lock primarily based totally on an Arduino UNO that employs RFID and a password is presently being created, in the use of numerous one of a kind technologies. This paper's predominant strategies encompass checking the ID card and password. The solenoid is unlocked if all states are authentic after verification. If the ID card is accessed, the yellow LED illuminates, permitting the keypad person need to enter a password; if each the ID card and the password are accessed, the inexperienced LED illuminates, permitting the solenoid to free up. If the ID card is rejected, the pink LED illuminates and the solenoid is locked. When the * and # keys have been pressed at the keypad, the solenoid switched from free up to fasten mode. To set up a check circuit and open and near a lock, the MFRC522 reader module is used. To free up a door, use a grasp key card to supply or deny get admission to diverse tags, and to increase a fundamental LED show that informs the person approximately the machine Finally, a solenoid serves because the lock, with a MOS FET permitting Arduino to securely flip it on and off. Some accommodations and different institutions use RFID door lock mechanisms that take away the want for a key to free up the room. When an ID card is located in the front of an RFID reader box, the lock is opened through a blinking LED. This RFID door lock is easy to make at domestic and may be used on any door. These door locks are certainly electrically operated door locks that open

while a voltage is carried out to them. It may be approached in the use of software program alone, hardware alone, or a mixture of each hardware and software program combo.

II. LITERATURE REVIEW

This article describes how to build a system that locks the door using a password and ARDUINO UNO. The system unlocks the door and allows the user who entered the correct code to access the zone. And his stuff is safe, as the average citizen can bid cheaply on such a locking system. Dr Danish Kumar is a neurologist. Dr. Amit Kumar OMA Dr. Hangman Tampa T V Suresh Kumar "Passwords are not a new concept when it comes to protecting Android-based smart door lock doors, but these systems have become more sophisticated as technology has evolved. "Active Door Locking System Using Arduino and IOT", Akshaya Krishnada's Bhate Siddesh Praveen kini, International Journal of Engineering Research and Technology, 2018, ISSN 2278-0181. This article describes how to use password protected door locks in a variety of situations, including: B. Home, office, and desk. Before unlocking an authorized user, the system validates the password entered by the user. This technique has the potential to be a cheap alternative to expensive door lock systems that use techniques such as retinal scans, iris scans, and fingerprints [1]. A.Y. Prabhakar, Ph.D. Professor Dr. Shruti K, NayanShrivastava, PrakaharShrivastava, and Gharvit Wadhwa, "Password" Based Door Lock System, International Research Journal of Engineering and Technology, Multi-User, Multi-Function System, October 2, 2016, Published in the International Journal of Advanced Research in Computing and communication technology. ISSN (online) 2278-1021 ISSN (print) 2319-5940 ISSN (online) 2278-1021 ISSN (print) 2278-1021 ISSN (online) 2278-10 This study uses an Android-based smart door lock system. Eliminating the problem Unwanted intrusion, breach, and expulsion are all issues that need to be addressed. The Bluetooth module is also integrated into this proposal and acts as a communication channel between the Arduino Uno and the mobile phone. This application is easy to set up and manage [3]. 0056 E-ISSN 2395-0072 p-ISSN 2395-0072 This document shows a secure and secure door lock system that provides network security using encryption algorithms such as SHA-128 and SHA-512. .. This technology also allows authorized users to access information remotely. The AES-128 and SHA-512 algorithms are used for user input encryption and hashing. When the sensor detects unauthorized access, it issues a warning and sends a notification to the authorized user's smartphone application on the smartphone [4]. IBRO Auhusto Aleksander "Smart Door Lock" by Mario ZYLA WONG. April 28, 2019 WORCESTER POLYTECHNIC INSTITUTE This article

describes a door lock system that uses facial recognition and data stored in the cloud to unlock the door through a camera placed on the door. This task is costly and requires the hiring and installation of qualified professionals [5]. Natashab Bint Mohd Zainot Shuhad Natashab Bint Mohd Zainot Shuhad Natashab BintMo "ARDUINO Based Door Access System"

University Teknologi PETRONAS Electricity and Electrical Engineering September 2012, "The Arduino-based door entry system was designed to solve the problem." According to this study, it is "non-replaceable." It also saves time and provides high quality service security [6].
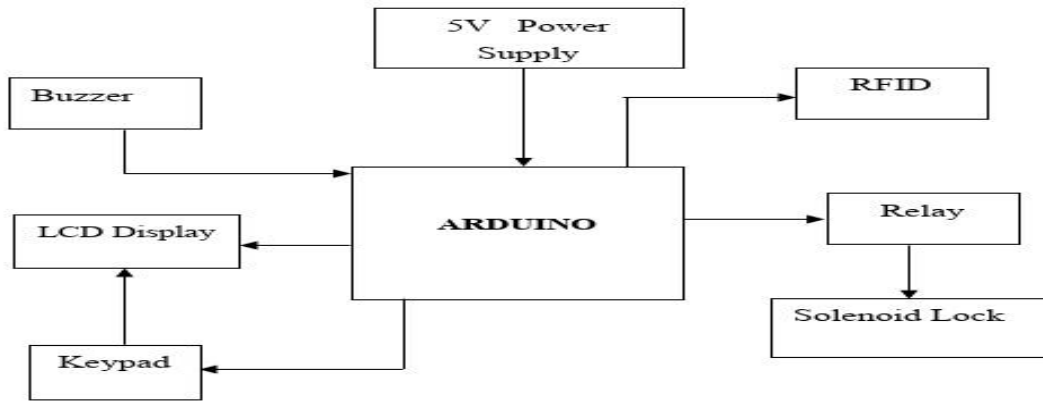
III. METHODOLOGY

Fig. 1: Arduino-based RFID and password-based door lock block diagram

A block schematic of a digital door lock primarily based totally on Arduino that makes use of RFID and a password. Connected to the strength deliver For strength distribution, use an Arduino and a solenoid. Arduino is hooked up to an RFID reader and a keyboard with a view to get records from it. One purple LED, and one inexperienced LED are used to sign RFID and password status. If the RFID tag and password are accurate, the inexperienced LED will remove darkness from and the door can be unlocked.
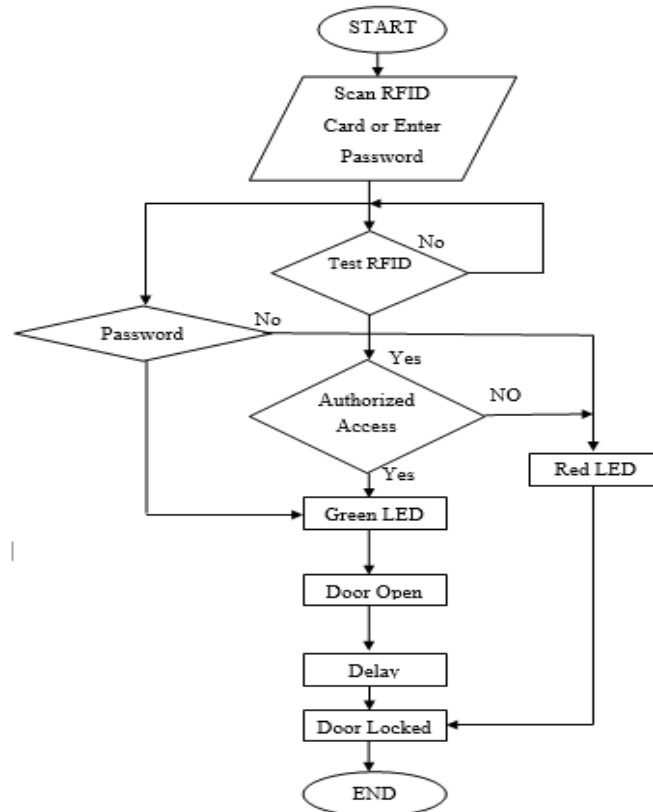

Fig. 2: Flow chart of door locks system
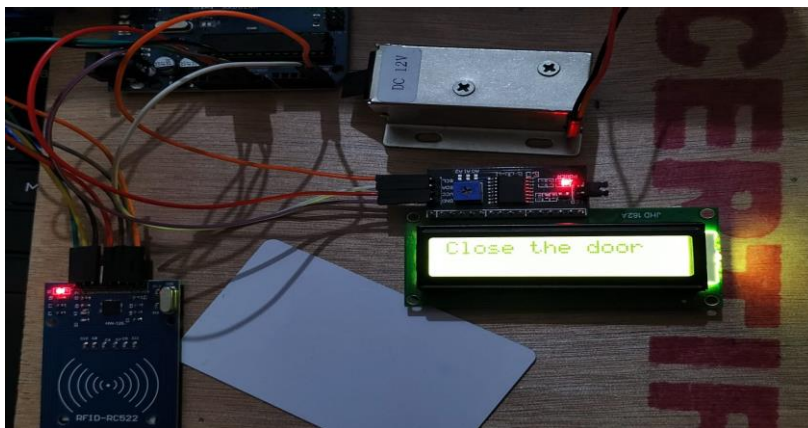
IV. EXPERIMENTAL RESULTS

Fig. 1

Fig. 2

V. CONCLUSION AND FUTURE SCOPE

The system includes RFID-enabled electronic door locks and an Arduino UNO-based password system. Electronic locking systems are preferred over mechanical locking to address security issues associated with mechanical locking. In this article, we designed an electronic door lock system for home automation. The main controller is an Arduino microcontroller. Arduino is a great and useful device. They are used in a variety of situations. You need to add other components to your Arduino to send and receive data. Arduino is all-purpose and low cost, so it is used in education and industry. The level of security can be changed by installing a bio-fingerprint scanner. In the event of an accident, sensors such as fire, LPG, and AIR motion detectors can be connected to the microcontroller to open the door automatically. You can connect the camera to a microcontroller and take a picture of an intruder trying to break into your system. This basic circuit can be used to improve the security of homes and the like. This application provides absolute security as long as the password is not shared with anyone. Users can add restrictions to make password entry more secure. Add a fingerprint scanner and display model to display notifications.

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