International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 02 | February - 2024 SJIF Rating: 8.176 ISSN: 2582-3930

Smart Locking System for Banking Applications

Prof.T.R.Wagh[1] ,Arpita Shivsharan[2] ,Pragati Divekar[3], Rutuja Choudhari[4]

Professor[1],BE Student JSPM'S JSCOE,Hadpsar,Pune[2-4]

[1234]*Electronics and Telecommunication Engineering ,Jayawantrao Sawant College Of Engineering ,Pune*

Abstract : The Smart and Innovative Locking System for Banking Applications introduces a cutting-edge approach to thwart unauthorized access, trespassing, and intrusion in environments prone to security threats, such as banks, corporate offices, financial organizations, jewelry shops, and government institutions. Elevating security measures, the system employs a dynamic One-Time Password (OTP) protocol, effectively enhancing security levels and deterring potential unauthorized unlocking attempts. User verification leverages a secure OTP-based methodology, ensuring a dependable and user-friendly method for secure access. This advanced security system provides a resilient and versatile security framework, empowering users to proactively address evolving security challenges.

Key Words: The Smart Locking System, Unauthorized Access Prevention, Dynamic OTP Protocol

1.INTRODUCTION

Traditional locking systems, such as key-based mechanisms, have long been employed for security; however, they come with inherent limitations. Our innovative security system aims to eliminate the inherent limitations of traditional locks, providing heightened security and convenience. The core components, including an Arduino Uno microcontroller, I2C 16x2 LCD, relay module, 4x4 keypad, and GSM SIM800L module, contribute to a comprehensive and effective security solution. Users input unique OTPs, activating the relay module to unlock the door. Real-time notifications via the GSM module keep authorized users informed about access attempts, adding an extra layer of security and awareness. This system is designed to streamline security processes and provide a sophisticated solution for modern security needs, ensuring that only authorized individuals can access designated areas.

I. LITERATURE SURVEY

Title	Author	Year	**Review**
Design and Construction of door locking security system using GSM	Ushie James ogri, Donatus Enang Baseey Okwong	2013	Developed a locking system using GSM.
Advanced Locker Security System	Prof R.Srinivasan , T.Mettilda, D.Surendhran, K.Gopinath, P.Sathishkumar	2015	Implement a locker system with high security based on RFID, PASSWORD,GSM and HEAT SENSOR technology which can be organised in banks, offices and other places where high security is required
Smart Bank Locker Security System Using Biometric Fingerprint and GSM Technology	Subhash H. Jadhav1 , S.S. Agrawal	2016	Implementing this bank locker security system using RFID, biometricfinger print , password and GSM Technology based security system which provide most efficient and reliable security system than the traditional system
Smart Locker: IOT based Intelligent Locker with Password Protection and Face Detection Approach	Niaz Mostakima , Ratna R Sarkarb , Md. Anowar Hossainc	2019	IOT based smart locker with OTP and face detection , which provides security, authenticity and user-friendly mechanism.

II.BLOCK DIAGRAM

The I2C 16x2 LCD serves as the interface for displaying messages and instructions to users, providing a clear communication channel with the security system. Interaction with the system is facilitated through the 4x4 keypad, where users enter a unique one-time password (OTP). The Arduino, at the system's core, generates and authenticates the OTP input by the user. Upon successful authentication, the relay module is activated, unlocking the door and allowing access. Additionally, the integrated GSM module enhances security by enabling the system to send real-time notifications to authorized users, keeping them informed about any access attempts. This comprehensive setup ensures a user-friendly yet secure interaction, combining display, input, authentication, and communication functionalities for effective access control.

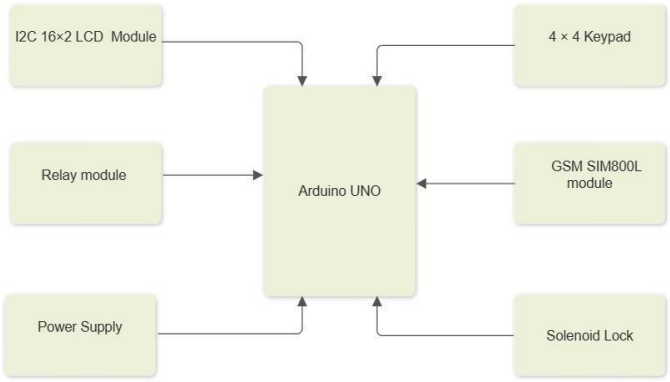

Figure -1: Block Diagram

III. CIRCUIT DIAGRAM

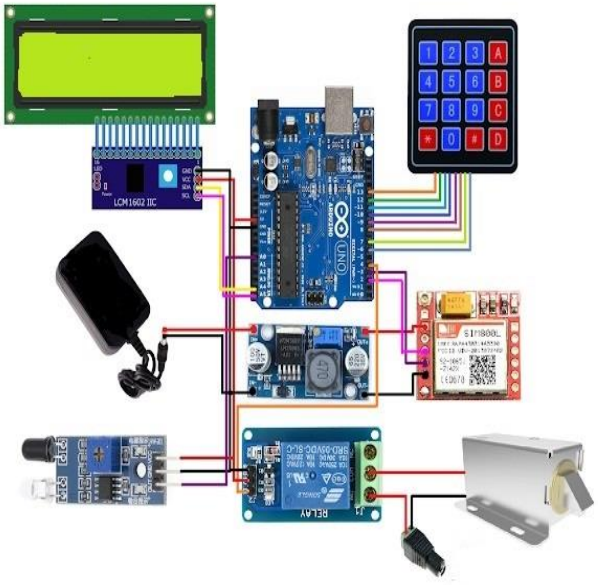

Figure -2: Circuit Diagram

IV.RESULT

Name of Equipment	Condition	Performance/ Result	Display
GSM Module	5 sec Delay	OTP is Generate if Valid	Access Granted
		OTP is Generate if Invalid	Access Failed
IR Sensor	Detects Device	Send OTP to device	Your OTP is XXXX
	Does not detect device	OTP does not send	-

Table1: Results

3. CONCLUSIONS

In conclusion, the paper talks about creating a safe digital locker using the internet and a special security system. This system, which includes a GSM security feature, is designed to be more secure than what's currently available. The main idea is to make a secure bank locker system that uses One-Time Passwords (OTPs). This system can be used in banks, offices, and homes. Only the right person with the correct OTP can open the locker, making sure that important stuff like documents and money are kept safe. The system also sends quick notifications to authorized users in case someone tries to access it without permission. It's easy to use and focuses on making sure your things are really safe. The hope is that people will feel confident about using it because of the extra security it provides.

REFERENCES

1. Elechi, P., Ekwueme, U., Okowa, E., 2022. Facial Recognition Based Smart DoorLock System. Journal of Scientific and Industrial Research 6, 95 – 105.Hussain, A., 2022. Automatic Door Lock System.
2. Bruce, K.B., Cardelli, L., Pierce, B.C.: Comparing Object Niaz Mostakim, Ratna R Sarkar, Md. Anowar Hossain, "Smart Locker: IOT based Intelligent Locker with Password Protection and Face Detection Approach", International Journal of Wireless and Microwave Technologies(IJWMT), Vol.9, No.3, pp. 1-10, 2019.DOI: 10.5815/ijwmt.2019.03.01.
3. Sagar S. Palsodkar*, Prof S.B. Patil , “Review: Biometric and GSM Security for Lockers” Int. Journal of Engineering Research and Applications , Vol. 4, Issue 12(Part 6), December 2014
4. Sanal Malhotra, “Banking Locker System With Odor Identification & Security Question Using RFID GSM Technology”. International Journal of Advances I Electronics Engineering IJAEE Volume 4 : Issue 3