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BELAGAVI-590018, KARNATAKA

LONG SYNOPSIS
ON

"Smart Door Lock System"

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Certificate

This is to certify that the long synopsis entitled, **"SMART DOOR LOCK SYSTEM"**,prepared by **Mr. Mohammed Akbar Awais (USN: 1CR18IS090) and Mr. Kushagra Goyal (USN: 1CR18IS081)** the bonafide students of CMR Institute of Technology in partial fulfillment of the requirements for the award of **Bachelor of Engineering in Information Science & Engineering** of the Visvesvaraya Technological University, Belagavi -590018 during the academic year 2021-22.

It is certified that all the corrections and suggestions indicated for Internal Assessment have been incorporated in the synopsis deposited in the departmental library. The synopsis has been approved as it satisfies the academic requirements prescribed for the said degree.

Signature of Guide	**Signature of HOD**
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Abstract

The Internet of Things is composed of things that have unique identities and are connected to each other over the internet. It is simply connecting and monitoring various devices and sensors through the Internet. This paved the way for home automation and monitoring which makes human life more comfortable and secure. This paper describes the overall notion of the IOT based sensing systems and monitoring systems for implementing an automated home. The proposed prototype uses a Node MCU board with the internet being remotely controlled by an Android OS smartphone. Node MCU is the heart of this system and it can perform as a micro web server and it acts as an interface for a wide range of hardware modules. To control lights, fans and other home appliances which are connected to the relay system, the system offers switching functionalities. It is also used for environmental monitoring by sensing and analyzing data about temperature and humidity. All these activities are controlled by using Adafruit IO.

Chapter 1

PREAMBLE

1.1 Introduction

The IoT technology is the interaction between individuals to individuals, machine to machine communication network. Application services supporting data and communication technology have been actively investigated within the knowledge data society. Above all, the foremost ascent will be determined in convergence services which mix over 2 parts for a similar purpose. Convergence services influence the Internet of Things (IoT) technology,because it permits all objects to produce intelligent service and interactive communication through wired or wireless networks. Moreover, the IoT trade is deemed the core industrial field of the long run. IoT provides convenient and effective services anywhere at any time, on the far side of the technical and economical restrictions, still because of the temporal and spatial limits by providing services needed in numerous varieties of fields. It also aids the distribution of intelligent terminals which incorporate good phones, in conjunction with the advancement of knowledge and communication technology.Meanwhile, the demand on convenience and speed has augmented within the economic sectors of contemporary society. The monetary sector, amongst alternative fields, needs IoT technology as mentioned above. Monetary institutes have augmented the distribution of unmanned and automatic machines to strengthen aggressiveness by advancing monetary services, streamlining the business processes, automating the system, and ultimately reducing prices.

Chapter 2

EXISTING SYSTEM AND PROPOSED SYSTEM

2.0 Existing system

The main goal of this project was to design and build a door lock system that allows users to unlock a door via the Internet. In this method's chapter, we will discuss how we detailed the process of implementing this mechanism. We started our research by confirming the need of potential users for such a system and then followed a modified version of the Software Development Life Cycle (SDLC) approach to design and build a door lock system.

2.1 Proposed System

Our project helps in building an economical and a low budget biometric lock using the Node MCU and connecting to the Internet available in a smartphone. The first step is to create a program using Adafruit IO and upload it into a microcontroller, in this case it is Adafruit IO. This program sets up a communication link between the nano board and a smartphone via the Internet. This communication link helps the microcontroller in executing the commands sent by the smartphone.

2.2 System Design

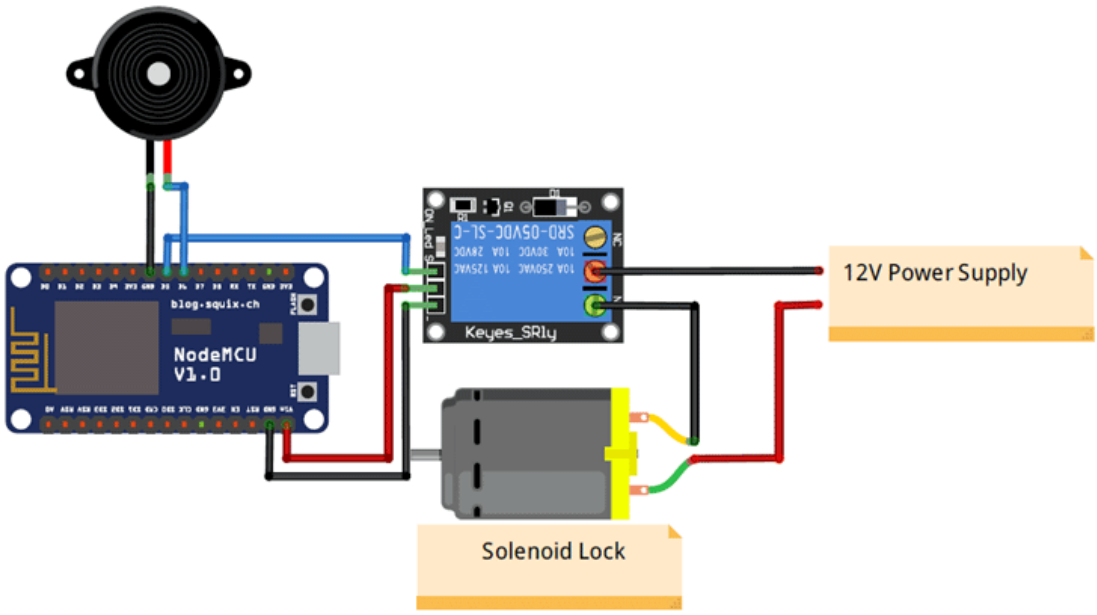
- NodeMCU ESP8266
- Solenoid Lock
- Relay Module
- Buzzer

Solenoid Lock

In conventional door lock, there is a key to pull or push the latch, and we have to operate it manually, but in solenoid lock, the latch can be operated automatically by applying a voltage. Solenoid lock has a low-voltage solenoid that pulls the latch back into the door when an interrupt (Pushbutton, Relay, etc.) is activated. The latch will retain its position until the interrupt is enabled. The operating voltage for the solenoid lock is 12V. You can also use 9V, but it results in slower operation. Solenoid door locks are mainly used in remote areas to automate operations without involving any human effort.

Smart Door Lock Circuit Diagram

Connections for this IoT Smart Door Lock are very simple as we are only connecting a solenoid lock, relay module, and a buzzer with NodeMCU ESP8266. The input pin of the relay is connected to the D5 pin of NodeMCU while VCC and Ground pins are connected to Vin and GND pins of NodeMCU. The positive pin of the buzzer is connected to the D6 pin of NodeMCU, and the GND pin is connected to the GND of NodeMCU.



Adafruit IO Setup for IoT Door Lock

Adafruit IO is an open data platform that allows you to aggregate, visualize, and analyze live data on the cloud. Using Adafruit IO, you can upload, display, and monitor your data over the internet, and make your project IoT enabled. You can control motors, read sensor data, and make cool IoT applications over the internet using Adafruit IO. For testing and trial, with some limitations, Adafruit IO is free to use. We have also used Adafruit IO with Raspberry Pi, Arduino and ESP32 previously.

2.3 Objective of the project

The proposed work approaches the recent IoT technologies along with the mobile communication techniques to authenticate the status of the conventional device. Thus, this study has been approved for security and safety issues. The future work may include the accessing permission which is to be given by the property owner for more security measures.

Plan of Implementation

Task	Estimated date of completion
Gathering Components	Before April 15
Making Connections	Before April 28
Adafruit IO Setup	Before May 10
Coding	Before May 20
Completion	June