**INTRODUCTION**

The present-day attendance system is manual. It wastes a considerable amount of time both for teachers and students. The waiting time of the students is increased if attendance is taken manually. There are still chances for proxies in the class when attendance is taken manually. Manual attendance always a have a cost of human error.

Radio Frequency Identification card is the essential recognizable proof for any student in the class. So, automating the attendance process will increase the productivity of the class. To make it available for every platform we have chosen the ESP32 for interfacing along with the Radio Frequency Transmitter and Receiver set with 2 different RFIDs of the student.

The attendance system will be displayed on the web page with the help of the Apache server .The front end of the web page is done on basic PHP programs also the styling is done on the CSS (Cascading Style Sheets) along with JavaScript to connect the pages together .All the things are integrated to each other using Internet of Things.

The internet of thing (Iot) is recently technology which is a concept that everything can be connected to internet and transfer information to each other, instead, its exist in every device to communicate on the internet, but also the IOT device are able to transfer intelligence to other device. This technology easily updating data and more sensitive to environment.

**AN INTRODUCTION TO RFID**

Radio Frequency Identification (RFID) technology is a non-contact, automatic identification technology that uses radio signals to identify, track, sort and detect a variety of objects including people, vehicles, goods and assets without the need for direct contact (as found in magnetic stripe technology) or line of sight contact (as found in bar code technology). RFID technology can track the movements of objects through a network of radio-enabled scanning devices over a distance of several metres.

A device called an RFID tag (or simply a tag) is a key component of the technology. An RFID tag usually has at least two components:

1. an integrated circuit for modulating and demodulating radio signals and performing other functions;
2. an antenna for receiving and transmitting the signal.

An RFID tag can perform a limited amount of processing and has small amount of storage. RFID tags are sometimes considered to be enhanced “electronic barcodes”.

RFID tags that do not have any integrated circuit are called chipless RFID tags (also known as RF fibres). These tags use “*fibres or materials that reflect a portion of the* *reader's signal back and the unique return signal can be used as an identifier.*

**HOW DOES RFID WORK?**

Systems that make use of RFID technology are typically composed of three key elements:

1. An RFID tag, or transponder, that carries object-identifying data.
2. An RFID tag reader, or transceiver, that reads and writes tag data.
3. A back-end database, that stores records associated with tag contents.

Each tag contains a unique identity code. An RFID reader emits a low-level radio frequency magnetic field that energises the tag. The tag responds to the reader’s query and announces its presence via radio waves, transmitting its unique identification data. This data is decoded by the reader and passed to the local application system via middleware. The middleware acts as an interface between the reader and the RFID application system. The system will then search and match the identity code with the information stored in the host database or backend system. In this way, accessibility or authorisation for further processing can be granted or refused, depending on results received by the reader and processed by the database.

**What Is Access Control?**

Before we can discuss the options for RFID access control products and how to set them up, we should first clarify what access control is. Access control is any system that limits the ability to enter secured areas, usually for the purposes of privacy, confidentiality, or to protect assets.

**Protection Of Assets By Limiting Contact**

The most basic form of access control would be the lock on your home. This reasonably ensures that only people you want in can enter your house or apartment. Many people do not realize how easy it is to implement card access systems such as RFID door locks, or even automatic login to individual computers.

**How Can A RFID Door Lock Help?(Extension)**

Although key or card access systems are incredibly common, not all methods of access control are created equal. Key and keypad-based systems have a limited number of possible combinations that are easily counterfeited or copied and changes take time and money. RFID access control is much harder to "spoof" or trick as each person gets a unique access code which can be allowed, revoked, or time limited at any point by your office team. This provides great flexibility for contractors and day/night staff.

Another common benefit is the RFID access control and time attendance management can be rolled together. With each use of the RFID badge or fob recorded with a precise time stamp, and each person having a unique ID the system can accurately tell you when each person arrived and departed if you also require a "badge out".

## Building Access Control System

Card access systems are increasingly being used by property management firms as part of the secure building access control systems. Limiting the use of elevators, stairways, and entrance to suites as an additional benefit to tenants.

RFID can also ease access to buildings and suites for those with disabilities. Since the doors lock is already controlled by the RFID signal, the doors opener could also be wired to automatically open the door upon authorization. This greatly decreases the frustration for those with a limited range of movement.

Secure parking access is another common use for RFID. Providing the same granular control and record keeping over who and when that were mentioned above, you can protect yourself from liabilities and potential incidents.

## Access Control In Businesses

We've focused heavily on securing entire buildings so far. RFID access control also has smaller scale applications. Of course, it can be used to secure server rooms or areas requiring security clearance. But as we've mentioned it can also protect and automate the login to your computers, or authorize use of vehicles like forklifts and trucks.

#### RFID Can Also Login to Computers & Safety Switch Vehicles

If you can think of something, you'd like records of, or detailed control over who, when, and where something can be accessed; there is an RFID solution for it.