

IETE-VIT ECE TECH

Summer Project Proposal

RFID Based Authentication System using Arduino

Name: Deepanshu Sharma

Reg. No.: 20BEE0300

Github Username: deepu2593

E-mail/Github E-mail: deepanshusharma04635@gmail.com

Whatsapp No.: 9082476119

Introduction:

Radio Frequency Identification (RFID) refers to a wireless system comprised of two components: tags and readers. The reader is a device that has one or more antennas that emit radio waves and receive signals back from the RFID tag. Tags, which use radio waves to communicate their identity and other information to nearby readers, can be passive or active. Passive RFID tags are powered by the reader and do not have a battery. Active RFID tags are powered by batteries.

RFID tags can store a range of information from one serial number to several pages of data. Readers can be mobile so that they can be carried by hand, or they can be mounted on a post or overhead. Reader systems can also be built into the architecture of a cabinet, room, or building.



Uses:

RFID can be used in a variety of applications such as:

* **Access management.**
* **Tracking of goods.**
* **Tracking of persons and animals.**
* **Toll collection and**[**contactless payment**](https://en.wikipedia.org/wiki/Contactless_payment)**.**
* [**Machine readable travel documents**](https://en.wikipedia.org/wiki/Machine_readable_travel_documents)**.**
* **Locating lost airport baggage.**
* [**Timing sporting events**](https://en.wikipedia.org/wiki/Transponder_timing)**.**
* **Tracking and billing processes.**
* **Monitoring the physical state of perishable goods.**

**Components and Software Required:**

* **Arduino IDE(Software)**
* **Arduino UNO Microcontroller**
* **Breadboard**
* **Resistors(3x220 ohms, 1x10 K ohms)**
* **RFID Reader(RC522 Module)**
* **RFID Tags (Master and Slave)**
* **Solenoid or Servo**
* **MOSFET**
* **LEDs**
* **Jumper Wires and hookup wires.**
* **Power supply**

**Idea and Method of Implementation:**

**The technology used in this project is already used in various industries for identifying personals and products on a large scale.**

We will build a test circuit to control access using a RC522 reader module, to open and close a lock, the solenoid or servo will act as the lock. We'll use a master keycard to add or remove access to different tags, and create a simple LED readout to tell us what is happening in the system. (E.g. when the access tag is authorized the green LED will blink or if not authorized the red LED will blink).

The Mosfet will open and close the lock, arduino will control the entire process (taking input through the RFID reader, processing it, adding or deleting the access tags and controlling the lock).Special libraries will be required to add in arduino IDE for RC522 module and coding will be done accordingly.

**Time Flow:**

* **Approval of project by 16th July including amendments in proposal (if asked).**
* **Commencement of project as soon as it is approved.**
* **Sourcing of materials within 1-2 days of commencement.**
* **Designing and uploading the circuit within 4 days of commencement.**
* **Integrating and understanding the RC522 module in the circuit as well as the arduino coding within a week of commencement.**
* **Completing and getting the desired output before the 1st review.**

P.S.: Seniors, please feel free to ask me correct any mistake in the proposal as your help will be very much appreciated☺.