



DEPARTMENT OF APEX INSTITUTE OF TECHNOLOGY

PROJECT PROPOSAL

1. Project Title: - WinDuino: Ditch the login hassle, embrace the tap.

2. Project Scope: -

"WinDuino" aims to streamline the login process for Windows systems and websites by leveraging an Arduino-based RFID authentication system. The project revolves around enhancing user convenience through RFID technology, minimizing the need for conventional login credentials like passwords. The primary components include an Arduino Uno, RFID RC522, RFID tags (attached to objects like a keychain and an electromagnetic card), a two-way radio transmitter-receiver (reader) for communication with the tags, and an ESP8266 CAM for continuous hardware surveillance.

- **Authentication Process:** The system starts by reading the Unique Identification (UID) of RFID tags using the RFID RC522 module. These tags, affixed to everyday objects like keychains and cards, serve as the user's credentials. The Arduino Uno stores the UIDs of authorized users, creating a whitelist. When a user presents their RFID tag, the system authenticates them by comparing the scanned UID with the stored values. Access is granted only if a match is found, providing a seamless and secure authentication process.
- **Integration with Windows and Websites:** The project extends its functionality to automate the login process for both Windows systems and websites. For Windows login, additional scripts or libraries are employed to simulate keyboard input. This ensures that the RFID-based authentication seamlessly replaces the traditional login method, to automate the login process, providing a holistic solution for various user authentication scenarios.
- **Continuous Surveillance:** To enhance security, the project incorporates continuous hardware surveillance using the ESP8266 CAM module. This surveillance system captures images or videos when unauthorized access attempts are detected. The ESP8266 CAM acts as an additional layer of security, allowing for real-time monitoring and recording of events. This feature not only deters potential intruders but also provides valuable data for post-event analysis.
- **Deployment:** Once the system is thoroughly tested and refined, it can be deployed for real-world use. Its versatility, covering Windows login and website authentication, makes it applicable for a wide range of scenarios. The project aims to simplify user access while enhancing security, offering a compelling alternative to traditional login methods.

3. Requirements: -



➤ Hardware Requirements

1. Arduino Uno
2. RC-522 RFID Module and Tags
3. ESP-8266 Camera Module
4. Breadboard
5. USB 2.0 Cable A/B
6. Jumper Wires (M to M & M to F)

➤ Software Requirements

1. Arduino IDE
2. Python 3.12 (for Execution Scripts)
3. Windows Terminal
4. Visual Studio Code (Version Control)
5. Word or Notepad (for Pseudocodes)

STUDENTS DETAILS

Name	UID	Signature
PRABAL MANHAS	20BCS4513	
ANANDU U.	20BCS4522	

APPROVAL AND AUTHORITY TO PROCEED

We approve the project as described above, and authorize the team to proceed.

Name	Title	Signature (With Date)
Dr. U. Hariharan (E11201)	Project Supervisor	