Team_Chaos

Mission:

To develop a fully-functional automated library system in order to simplify the task of issuing and returning the books by the student in any institution.

Inspiration:

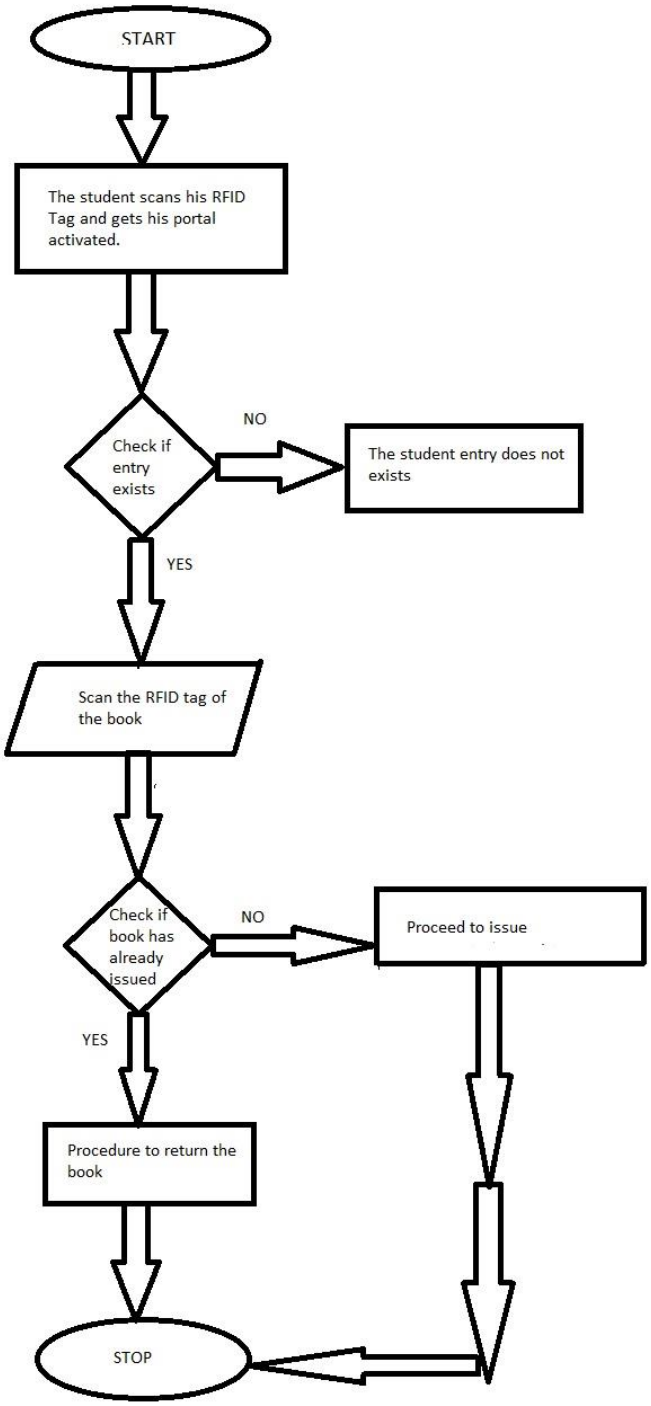
An efficient Library management system is very essential for the students as well as the governing institution for the ease with which the books can be issued and returned by the student. In the existing system, the librarian uses the barcode system to scan the code to get the book details and the student has a unique number. When the librarian types the register number of the student, that particular book will be issued based on the availability. This can lead to long queues and delays, as well as affect the availability of the services, depending on the human operator's presence or absence.

Our Solution:

To overcome this problem and aim at fully automating the book-exchange process. We have used existing RFID-Technology for its successful implementation and transform the existing system into efficient one.

Workflow:

- Each student will have a RFID-Tag to uniquely identity him/her.
- Also, each book will have a RFID tag for the same purpose.
- A student willing to issue a particular book, will simply walk up to a terminal equipped with a RFID-Reader.
- The student first scans his own RFID-Tag, to initiate a book issue request. The book which the student wants to issue, is scanned next; multiple book may be scanned at once.
- The student rescans his own tag to complete the process.
- The return of the book also follows similar procedure. The details of the issue are sent over to the cloud to an online hosted SQL Database.


START
The student scans his RFID Tag and gets his portal activated.
Check if entry exists
NO
The student entry does not exists
YES
Scan the RFID tag of the book
Check if book has already issued
NO
Proceed to issue
YES
Procedure to return the book
STOP

Arguments Passed:

The RFID Tag ID of the student is the primary argument in this project which is used for the information retrieval of the database and various other purposes.

Technology Stack:

- MYSQL Database Server
- RFID Reader (for the scanning of the various RFID tags)
- Arduino Uno
- Arduino IDE
- Python (for the Graphical User Interface and Database Integration with MySQL)

Dependencies:

- The system will depend upon the functionality of the Arduino throughout its lifetime.
- Proper functioning of the RFID tags.
- Reliable internet connection for the functioning of the database.
- Interference of the other radio signals in the same frequency range as the RFID tags.
- Python Libraries (pyserial, pymysql, tkinter)

Future Implementations:

Our team is working on the implementation and are looking forward for its implementation in as many institutions as possible. The success of this project can be really handful on the go. It will lead to reduced human labour and faster queue processing.