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# **Automation of Institutions using Near Field Communication**

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# Automation of Institutions using Near Field Communication

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## Paper Presentation

### TEAM

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### ABSTRACT

Entire world is getting smarter and faster in various ways, various institutions and organisations are being smarter in various segments but are lacking the technology to display the data in handy way when required and is usually required a lot of process. Some of the issues faced by some institutions are that

- It fails to provide the data (test scores, internship record, leave record, attendance, basic personal details and more) of a student on the very second when needed
- It fails to ease the way in which people use institution/organisation's services like canteen, bookstores and more, where people stand in unnecessary queues and waste a lot of time.
- It lacks the efficiency in changing or recording data when needed.
- It usually has a platform which either is not available or not accessible at all moments of time

### INTRODUCTION

NFC – NEAR FIELD COMMUNICATION is technology shift from one machine to the network and the devices connected to a single concept from hardware to multiple devices purposes. It is a

combination between identity and connectivity through technologies that enables contactless proximity between information and become easy communication between small electronic devices to be created to urge the magnetic induction when they are touching the devices or become closer to each other with a few centimeters to enable communication between them.

NFC enables two way communications between electronic devices. And has the capability to write to the RFID (Radio Frequency Identification) chip. Therefore bidirectional communication between NFC-equipped cell phone and NFC reader can be established. That makes the possibility to develop complex applications like payment, secure exchange of data and identity's authentication. NFC implements touching paradigm. Touching is a famous and interactive method in human lives. This makes NFC technology easy to learn and use. This touching paradigm was initially used in RFID (Radio Frequency Identification) technology. In RFID technology items marked with tags contain transponders which emit messages in the form of signals. RFID readers were used to read those messages. NFC is now integrated with this RFID technology.

If you have a laptop and cell phone equipped with NFC, then you can easily download data from Internet into your cell phone by simply touching your cell phone with laptop.

## IMPLEMENTATION

An NFC embedded identity card or as we can say smart ID card is card which is mandatory to be worn by every student in an institution. This NFC embedded inside the card is preloaded and updated with a URL which changes with each individual based on their unique id or register number. This URL leads you to an ERP-based software (webpage) which will provide you with all the solutions for the problems faced in the institutions. The data of the student will be displayed with a single easy tap of this card in the back of any NFC-enabled smart phone, there is no need of installing any new application or software to read this NFC tag as every smart phone by the end of 2026 will have a NFC receiver already present in it.

The tools required for the implementation includes a NFC Tag, Smartphone and a software solution. The languages used to make the software include

- HTML
- CSS
- Python Django
- JavaScript
- PostgreSQL

This software can be hosted using cloud servers. The software receives its security from the already existing ERP system of the institution and in addition to it there will be a Two-Factor authentication which makes the solution secure in the Cyber world.

On tap of this card it will land you to a page which provides the basic information of a student. This landing page contains various buttons including Academics, Discipline, Payments and Documents.

The academics page acts as a complete ERP solution which is fast, reliable and appealing which contains the attendance records, grades, timetable of the respective student, current semester subjects and his/her CGPA and GPA.

The Discipline page contains the discipline conduct of the student.

The payments page contains an E-Commerce page in it which helps the individual to order food from canteen and items from the bookstore and pay for the respective order through the portal. When this order is successful, a receipt is generated in the receipts section which can be shown at the respective counter and the items can be collected without any hassle.

The Documents section in the landing page contains various documents which are essential inside a institution like Aadhar Card or the documents issued by the institution to the student like hall tickets, VAC certificates, mark sheets more. These documents can be viewed online directly from the ERP system.

## **RESULT/OUTCOME**

This solution inside a institution makes life easier for both students and staffs. The staffs can get the student's details within a second on a single tap of the card. The employers coming to recruit students can get the specific details of students using their cards rather than their entire history in booklet of papers. These cards are cost efficient too as the NFC Tags usually cost around ₹20-50.

This system is easily integratable with any pre-existing data records by just calling the data into our system which displays the data.

## **PROJECTS WITH SIMILAR CONCEPT**

No institution has yet to use NFCs to automate an ERP system; it is implemented in debit/credit card transactions using NFC, it is used in unlocking doors using NFC cards, it is used in recording attendance with tap of the card in attendance recording monitor.

## **REFERENCES**

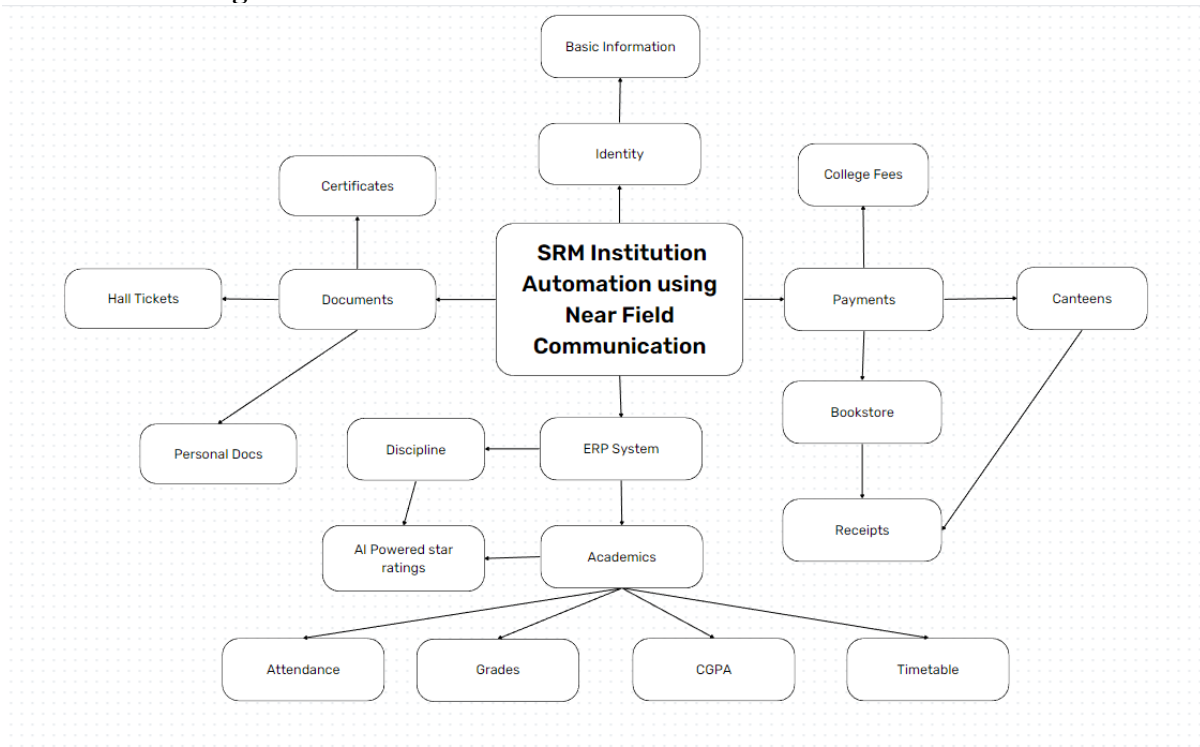
<https://praveenram.viscoro.tech>

<https://prasath.viscoro.tech>

<https://fahad.viscoro.tech>

<https://viscoro.tech>

## Architecture Diagram



## References - Images



**Prasath Ram R**  
2021-2025



ACADEMICS



DISCIPLINE



FEES/DUES

### STUDENT DETAILS



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Day Scholar



### ACADEMIC ACTIVITIES



Attendance



Time Table



Test Scores



Assignments



Sem Subjects



Sem Grades



### DISCIPLINARY RECORDS

DATE	ACTION	COMPLAINT
17.06.2022	Bunking	Warned
05.08.2022	Fighting	Suspended - 2 weeks
02.12.2022	Regular Absentee	Parents Been Called
08.02.2023	Dress Code	Sent Back Home - No Attendance



### COLLEGE MART



CANTEEN



BOOKSTORE

### LIBRARY RECORD



ISSUED

### FEES



GATEWAY



RECEIPT



### MY ISSUED DOCUMENTS

DOCUMENTS	ACTION
Hall Ticket	
III Semester Grade-sheet	
VAC Completion Certificate	
Project Day - Participation Certificate	
Aadhar Card	