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INNOVATION / TECHNIQUES DETAILS

TEAM DETAILS

Medical Smart Card with Scanner

- Team Leader : S.Nakshathra (2025)
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INTRODUCTION

Imagine a world in which medical emergencies are handled quickly and accurately, and every second, and every detail matters.

“A Life Lost: The Value of Medical Records”Story:

Rahul, a 40-year-old male with heart history, suddenly grasped his chest and passed out. His family attempted to drive him to the hospital, and the hospital staff worked fast to ascertain he was having a heart attack. However, they had no records to ascertain his medical history. The staff and doctors in the hospital had no idea of surgeries he had undergone, medications, or any allergies. Unfortunately, after the staff and doctors did everything possible to get him the right treatment, time was lost, and Rahul reportedly died. If the hospital staff or doctors had an access point to know or learn his medical history, they may have been able to provide him better targeted care.

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- **The Turning Point**:

This heartbreaking scenario characterizes the concern of your medical records and provides a point of focus to begin the challenge; if you had a medical history or record for an individual. The Medical Card with Scanner encourages awareness and plans forward to stopping such a tragedy from happening to someone you trust.

- **Our Project**:

The Medical Card with Scanner can potentially save more lives if patients could carry a record of their medical history

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PROBLEM STATEMENT

"Current healthcare emergency response systems do not efficiently and securely access patient medical background leading to an umbrella of treatment delays, contributing to increased potential for medical errors."

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SOLUTION

Problem:

Cancer and other chronic patients carry bulky medical records; in emergencies, doctors often don’t get their complete history on time.

Solution:

Provide every patient with a Smart Medical Card (RFID/NFC/QR-based).Each card is linked to a secure database containing their full medical history.A scanner/reader in hospitals instantly fetches the patient’s details.Doctors can view diagnosis, ongoing treatments, allergies, and past records within

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METHODOLOGY

- Registration
- The patient presents to the hospital and they are registered in the system
- The Smart Card is created and is unique to that patient and ID number.Data Storage, The patient's medical information (reports, prescriptions, treatments, etc.) is stored in the SQL database
- Data is encryption for storage security.
- The patient presents their Smart Medical Card at a hospital and the scanner/reader scans the Smart Medical Card.
- The system will gather the patient's medical record from their current medical history database with doctor Access. The physician will view the complete medical history of the patient through a web or mobile application
- The physician updates (new treatment and medication, tests, etc.) if applicable to the patient's medical record in real-time and into the SQL database.
- The same Smart Medical Card will be accepted and utilized at multiple hospital/hospital systems
- This will ensure continuity of care for the patient.

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TECHNOLOGY STACK

1.QR CODE &CLOUD INTEGRATION – Secure QR CODE linked to a cloud database for storing / retrieving patients health records.

2.MOBILE APP+ SCANNER TECHNOLOGY –Lightweight mobile/web app with built in QR-CODE scanner for instant access to medical data,mainly in rural areas.

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- **JavaScript:** Responsible for implementation and interactivity
- **SQL:** Responsible for data storage and database management
- **CSS:** Responsible for the design and user interface .
- **Firewall** :secure data storage and encryption

INNOVATION / TECHNIQUES DETAILS

TARGET INDUSTRY

- Healthcare Provider : Hospitals, clinics, and medical facilities.
- Patient Care : Improve patient outcomes and experiences.
- Medical Data Management: Efficient and secure management of patient data.
- Healthcare Technology : Utilising a technology, e.g. QR code, to enhance healthcare services.
- Regulatory Compliance : Healthcare organizations need to be in line with regulations and standards.

INNOVATION / TECHNIQUES DETAILS

UPS(UNIQUE SELLING PROPOSITION)

- QR code accessibility: The QR code of patients can be scanned only by doctors using a specific application
- Aadhaar card linkage limitation: Limited mainly to cities where Aadhaar cards are linked to hospitals
- App functionality limitation: Hospital-specific apps work only within the hospital.

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VISIBILITY

- Growing population for digital health
- Potential for mass-market applicability in health care.
- Audience reached: patients, health care providers, and insurance companies.

FEASIBILITY

- Technical: Smart card & scanner technologies are compatible
- Economic: Costs & healthcare benefits are balanced
- Operational: Works with existing healthcare systems
- Legal: Conforms with data regulations in India

User Acceptance: Protect user's action & identity

INNOVATION / TECHNIQUES DETAILS

IMPACT AND BENEFITS

Impact

- ❑ Saves crucial time during emergencies.
- ❑ Reduces duplicate tests.
- ❑ Provides portable, secure, and lifelong access to medical history.

Benefits

- ❑ Improved Patient Safety: Accurate identification and access to the patient's medical history.
- ❑ Improved Care: Prompt access to essential medical information for health service providers.
- ❑ Efficiency: Reduction in waiting time and streamlined registration.
- ❑ Reduced Errors: Mitigated risk of medical errors due to indecipherable writing or misplaced records.

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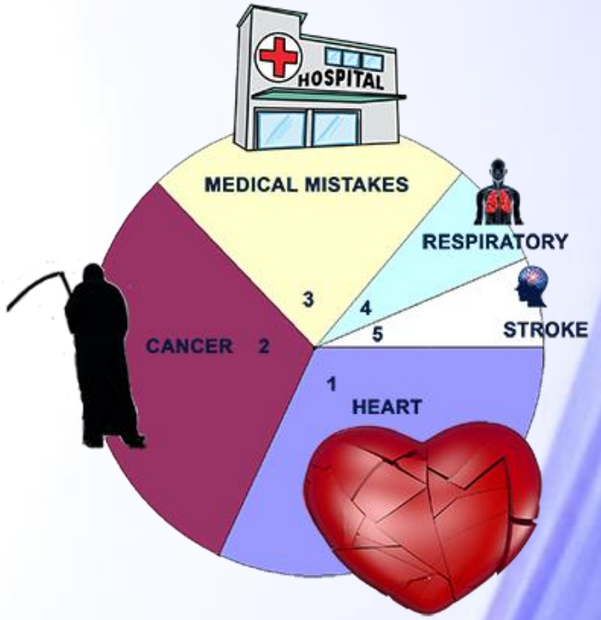
NEED FOR OUR PROJECT

- One 2018 study from Johns Hopkins estimated over 250,000 U.S. deaths annually from medical mistakes, placing it as the third-leading cause of death in the United States.
- Anna Nicole Smith (2007) : The model and television personality died from a drug overdose caused by a lethal combination of prescription medications. Investigators claimed that the 11 different prescriptions she was taking led to her death.



MEDICAL MISTAKES
3rd LEADING CAUSE OF DEALTH IN THE U.S.A.

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Inadequate information about a patient's past health conditions, treatments, allergies, or other relevant medical details that are important to an accurate medical history and the appropriate medical care and diagnosis. This can lead to misdiagnoses, wrong treatment, drug adverse reactions, or other preventable patients medical harm, possibly causing serious injury to the patient or death.

How inadequate medical history leads to poor medical outcomes:

✓Misdiagnosis
✓Drug interaction
✓Delayed care
✓Treatment errors

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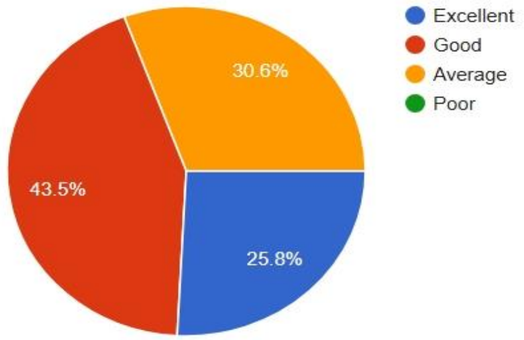
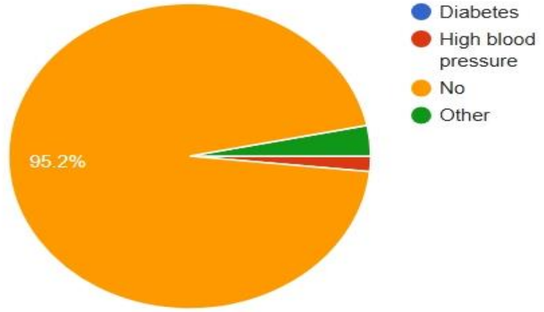
3.How would you rate your overall health?

62 responses



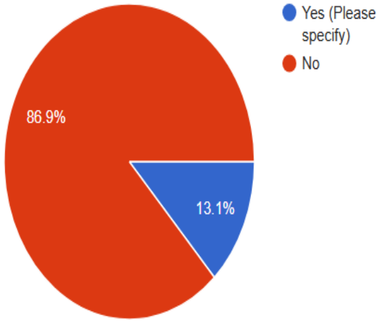
4.Do you have any genetic diseases?

62 responses



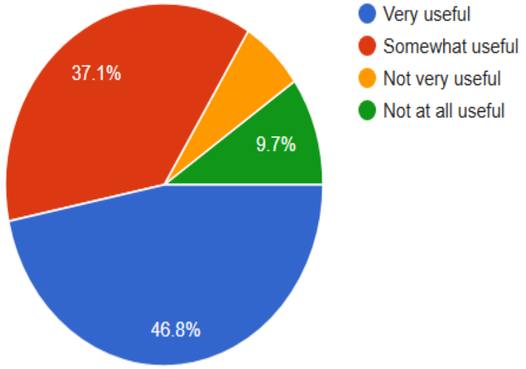
5.Do you have any allergies or medical conditions that require special attention?

61 responses



6. How useful do you think a smart medical card would be for you?

62 responses



CONCLUSION

The Medical Smart Card is more than just a personal health record, it is also a social innovation. It makes sure that during times of emergencies no one goes unidentified or untreated. When medical information is instantly accessible, the time to treatment decreases, there is greater trust between the patient and the healthcare provider, and the safer, healthier society benefits us all.