



Smart Hospital Wristband for Real-Time Patient Data via NFC

Project Category: PRODUCT

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Abstract

The **NFC Healthcare System** is a Python-based application that leverages Near Field Communication (NFC) technology to store, retrieve, and manage patient medical records. This system simplifies hospital workflows by enabling doctors and medical staff to write patient information—including prescriptions—directly onto NFC tags. These tags can then be read for quick access or exported as PDF reports with hospital branding. Additionally, the system integrates optical character recognition (OCR) to scan physical prescription images and convert them into editable text, enhancing data accuracy and accessibility.

Introduction of project



- The project focuses on building an intelligent and secure patient data management solution using NFC.
- By digitizing how medical data is recorded and retrieved, the system addresses common issues such as misplaced prescriptions, manual entry errors, and delays in patient care.
- Using Python and its supporting libraries, the system combines NFC scanning, OCR-based text extraction, and PDF generation to streamline hospital documentation processes.
- This solution is especially beneficial in emergency or rural healthcare settings where quick access to accurate patient history can be life-saving.

Product Vision Statement



- For hospitals and healthcare workersWho need a quick, secure, and efficient way to manage patient medical records.
- The NFC Healthcare System Is a lightweight Python-based tool that allows NFC tag writing, reading, and prescription scanning.
- That improves the efficiency of medical record-keeping.
- Unlike traditional paper-based or complex digital systems.
- Our product offers direct interaction with NFC tags and seamless OCR-to-database integration.

Product Backlogs



- 1.NFC Writing Module
- 2.NFC Reading Module
- 3.Prescription OCR Scanning
- 4.PDF Export & Report Generation
- 5.User Interface & Usability

Architecture Document



Tech Stack:

Python Libraries:

nfcpy – for reading/writing NFC tags

pytesseract, pillow, tesseract – for OCR functionality

reportlab – for PDF generation

Components:

1.NFC Writer Service – Takes form input and writes encoded data to NFC tags

2.NFC Reader Service – Reads NFC tag data and parses it into readable format

3.OCR Engine – Uses camera or uploaded images to extract prescription text

4.PDF Generator – Creates downloadable patient reports

5.GUI Layer (Tkinter or PyQt) – For user interaction

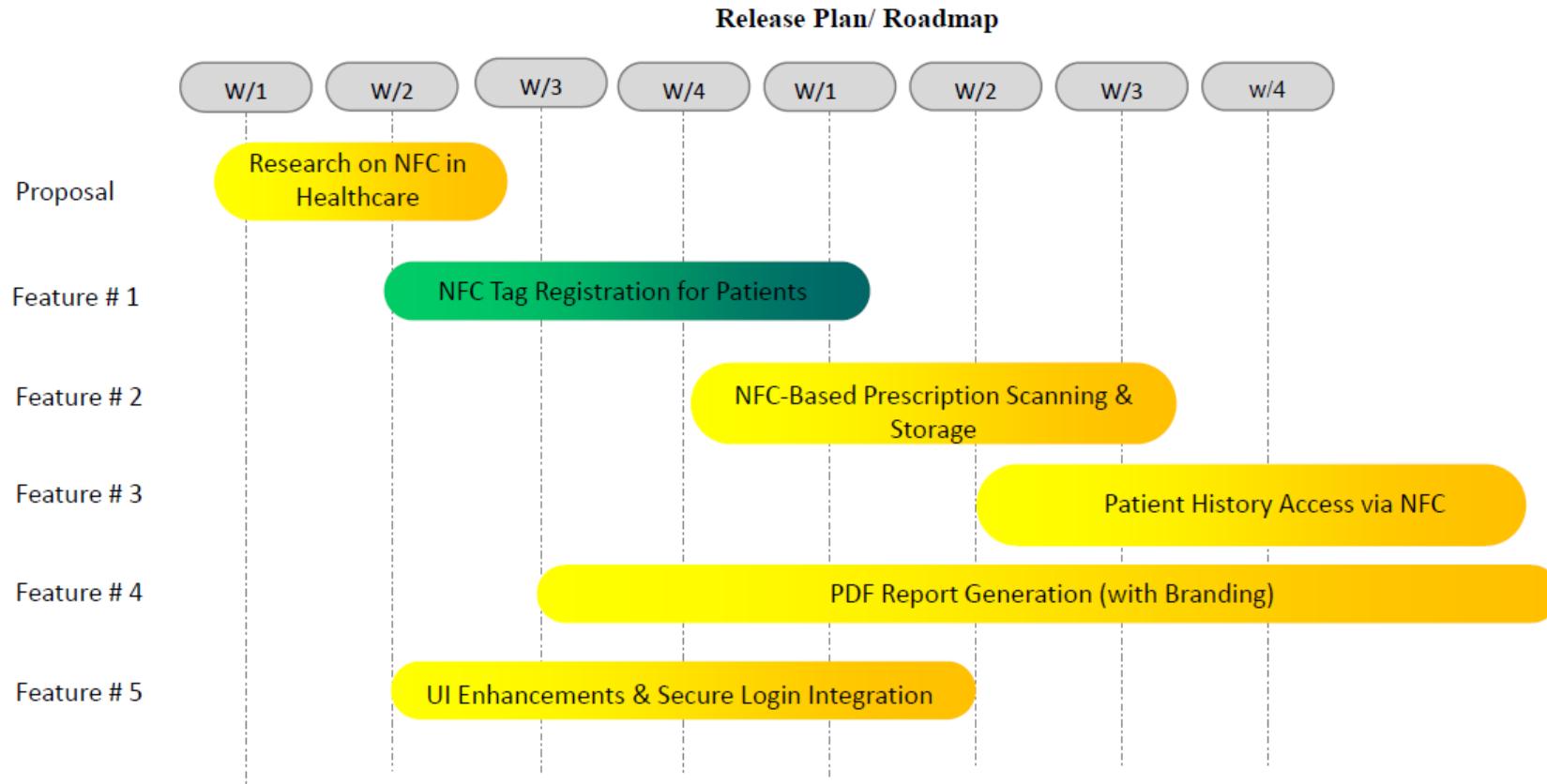
Justification of Project SDG



This project contributes to SDG Goal 3: Good Health and Well-being by:

- Enhancing the speed and accuracy of medical data retrieval
- Reducing manual errors and paper waste in prescription handling
- Promoting digital healthcare access in low-resource settings

Product Roadmap/ Release Plan



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Thank You

