Project Report on

**Care Point Medical Center**

at

## U. V. Patel College of Engineering



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**B.Tech Semester V**

**(Computer Engineering)**

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U.V. Patel College of Engineering

Ganpat University, Kherva - 384 012

##### **U.V. PATEL COLLEGE**

##### **OF**

##### **ENGINEERING**



**DD/MM/YY**

### CERTIFICATE

**TO WHOM SO EVER IT MAY CONCERN**

This is to certify that Mr./Ms. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Doctor of **B.Tech. Semester V (Computer Engineering)** has completed his/her full semester Capstone Project work titled “**Title of the project”** satisfactorily in partial fulfillment of the requirement of Bachelor of Technology degree of Computer Engineering of Ganpat University, Kherva, Mehsana in the year 2023-2024.

**College Project Guide**

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**Head, Computer Engineering**

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**Acknowledgement**

We extend our heartfelt thanks to our valued patients, dedicated medical team, and supportive staff who have contributed to the success of Care Point Medical Center. Your trust, expertise, and collaboration have been the driving force behind our commitment to exceptional healthcare.

With gratitude,

Prof. Satish K.Maurya

**Care Point Medical Center**

**Abstract**

Care Point Medical Center is a leading provider of integrated healthcare services, centered around patient-focused care and technological innovation. Offering a comprehensive range of primary care services, Care Point Medical Center is committed to improving patient outcomes through a holistic approach, combining the latest medical technologies with expert clinical care. The center specializes in several fields, including cardiology, orthopedics, oncology, and internal medicine, ensuring a multidisciplinary approach to each patient's individual health needs.

This digital platform allows patients to schedule appointments, register for consultations, and access crucial medical information at their convenience. The user-friendly interface ensures that scheduling an appointment with your preferred specialist is effortless and efficient. Care Point Medical Center is a leading provider of integrated healthcare services, centered around patient-focused care and technological innovation. Offering a comprehensive range of primary care services, Care Point Medical Center is committed to improving patient outcomes through a holistic approach, combining the latest medical technologies with expert clinical care. The center specializes in several fields, including cardiology, orthopedics, oncology, and internal medicine, ensuring a multidisciplinary approach to each patient's individual health needs.

1. **Introduction**
   1. **Project Overview**

Care Point Medical Center is envisioned as a state-of-the-art healthcare facility aimed at serving the XYZ community and its neighboring areas. The center's primary objective is to offer comprehensive medical services, spanning outpatient and inpatient care, specialty clinics for various medical fields like cardiology and orthopedics, a 24/7 emergency wing, and a cutting-edge diagnostic and imaging center.

With a commitment to providing high-quality and compassionate care, the center is focused on attracting experienced medical professionals and implementing advanced electronic medical record systems for efficient patient management. The project timeline spans a year, starting with land acquisition and ending with the grand opening, all within an estimated budget of $X million. Essential metrics for evaluation include patient intake numbers, satisfaction surveys, and regular health and safety audits.

* 1. **Background**

Care Point Medical Center, situated in the heart of the XYZ community, was established to address the growing healthcare needs of the region. Conceived with a vision of becoming a beacon of medical excellence, the center combines modern infrastructure, cutting-edge technology, and a team of dedicated professionals to offer comprehensive medical services. Over the years, Care Point has cemented its reputation as a trusted healthcare provider, consistently prioritizing patient welfare and setting benchmarks in medical care standards.

* 1. **Purpose**

The primary purpose of Care Point Medical Center is to provide accessible, high-quality healthcare services to the XYZ community and its surrounding areas. Recognizing the pressing healthcare challenges faced by residents, Care Point aims to bridge the gap between demand and quality medical provisions. The center strives to create a patient-centric environment, ensuring that each individual receives personalized and compassionate care. With its state-of-the-art facilities and dedicated team of professionals, Care Point stands committed to enhancing the well-being of the community, fostering preventive healthcare practices, and championing medical excellence.

* + 1. **Problem statement**

The XYZ community, where Care Point Medical Center is located, has been grappling with a shortage of comprehensive healthcare facilities, leading to prolonged waiting times, increased travel distances for specialized treatments, and a general lack of accessible quality healthcare. Many residents have voiced concerns about the inadequacy of local medical provisions, especially in emergency situations or for specialized care. The absence of a centralized medical institution equipped with advanced medical technology and skilled professionals has further exacerbated the community's health challenges, leaving a dire need for a facility like Care Point to step in and address these pressing issues.

* + 1. **Project Aim**

The primary aim of the Care Point Medical Center project is to establish a fully-equipped, state-of-the-art healthcare facility that can cater to the diverse and growing medical needs of the XYZ community. Care Point aspires to reduce the current gaps in healthcare accessibility by offering a wide array of services, from emergency care to specialized treatments, all under one roof. With a focus on patient-centric care, the project endeavors to drastically reduce waiting times, eliminate the need for residents to travel long distances for quality care, and ultimately, uplift the overall health standard of the community. Through its services, Care Point aims to be a beacon of medical excellence, ensuring that every resident has timely, efficient, and compassionate healthcare within their reach.

* + 1. **Project Objectives**

The Care Point Medical Center project sets forth several key objectives to ensure its vision materializes into tangible benefits for the community. First and foremost, the center aims to provide a comprehensive range of medical services, effectively eliminating the need for residents to seek specialized treatments elsewhere. This includes the establishment of dedicated wings for various medical disciplines, an always-ready emergency unit, and a state-of-the-art diagnostic center. Professionals is another significant objective, ensuring that patients receive expert care. The center also intends to implement a robust electronic medical records system, streamlining patient management and enhancing data security. Moreover, Care Point targets a high patient satisfaction rate, aiming to achieve this through continuous feedback, regular training sessions for staff, and maintaining a strong emphasis on patient welfare and comfort.

* 1. **Project Scope**

The project scope for Care Point Medical Center encompasses the design, construction, and operationalization of a multi-specialty healthcare facility in the XYZ community. This includes the establishment of outpatient and inpatient services, specialty clinics covering disciplines such as cardiology, orthopedics, and paediatrics, a 24/7 operational emergency wing, and a top-tier diagnostic and imaging center. The scope further covers the procurement and installation of cutting-edge medical equipment, recruitment and training of a comprehensive team of healthcare professionals, and the deployment of an advanced electronic medical records system. Additionally, within the defined scope, Care Point will also create patient support facilities such as a pharmacy, rehabilitation center, and patient counseling services, ensuring a holistic healthcare experience for the community.

* 1. **Impact, Significance, and Contributions**

**Impact:**

Improved Accessibility: Care Point Medical Center has dramatically increased the availability of high-quality medical care for the XYZ community, eliminating the need for long-distance travel to receive treatment.

Economic Boost: The establishment of the center has created job opportunities, from medical positions to administrative roles, stimulating local economic growth.

Enhanced Emergency Response: With a 24/7 emergency wing, the center has bolstered the community's capacity to respond to acute medical crises, potentially saving more lives.

**Significance:**

Community Health Upliftment: Care Point has become a central figure in elevating the health standards of the XYZ community by offering a comprehensive range of medical services.

Setting Benchmarks: By integrating state-of-the-art technology and recruiting top-tier medical professionals, the center has set new benchmarks for healthcare quality in the region.

Healthcare Education: The center also plays a pivotal role in raising health awareness, hosting regular workshops, seminars, and counseling sessions that educate the community on various health matters.

**Contributions:**

Training and Development: Care Point is not only a healthcare provider but also an institution for learning. It offers training programs for budding medical professionals, thereby contributing to the future of healthcare.

Community Outreach: Beyond its immediate services, the center has initiated various community outreach programs, offering free medical camps, screenings, and health talks to underserved populations.

Research and Innovation: Care Point is also a hub for medical research, partnering with academic institutions and pharmaceutical companies to contribute to medical advancements and innovative healthcare solutions.

* 1. **Organization of Project Report**

**1. Executive Summary:**

Brief overview of the project's purpose, objectives, main findings, and recommendations.

**2. Introduction:**

Background information on Care Point Medical Center.

Statement of the problem.

Purpose of the report.

**3. Project Objectives:**

Clear listing of the primary and secondary objectives of the Care Point Medical Center project.

**4. Project Scope:**

Boundaries of the project.

Inclusions and exclusions.

Stakeholder list.

**5. Methodology:**

Research methods employed.

Data collection techniques.

Analysis tools and techniques used.

**6. Project Implementation:**

Detailed account of each phase of the project from initiation to completion.

Challenges faced and solutions implemented.

Timeline of the project.

**7. Financial Overview:**

Initial budget estimation.

Actual expenditures.

Variance analysis.

**8. Key Findings and Results:**

Summary of the outcomes in relation to the project's objectives.

Achievements and milestones.

Unanticipated results or challenges.

**9. Impact, Significance, and Contributions:**

Detailed account of the project's impact on the community.

Significance of the project in the healthcare domain.

Contributions to the field and the community at large.

**10. Recommendations and Future Directions:**

Suggestions based on the project's findings.

Potential improvements or expansions for Care Point Medical Center.

Proposals for future projects or initiatives.

**11. Conclusions:**

Summary of the report's main points.

Overall evaluation of the project's success.

**12. Appendices:**

Supplementary information like charts, graphs, and tables.

Copies of surveys or questionnaires used.

Detailed financial statements.

**13. References:**

List of all sources consulted or referenced during the project and report compilation.

2. Literature analysis table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SR  No | Technological stack | Features | Advantages | Disadvantages |
| 2.1 | SQL Database | * Patients records * Appointment scheduling billing | * Scalable * Comprehensive   Patient management | * Internet dependency * Data security concerns |
| 2.2 | Oracle DB | * Emergency room management * Laboratory results | * Local data storages * Seamless tool integration | * Limited scalability * High initial cost |
| 2.3 | Python ,  PostgreSQL | * Telemedicine * Medication tracking | * Combines cloud and local * Integration | * Complex setup * Regular AI updates needed |
| 2.4 | Node.js,  MongoDB | * Secure patient data sharing * Transparent billing | * Enhanced security * Reduced fraud | * Adoption challenges |
| 2.5 | Mobile based,  Swift(IOS),  Kotlin(Android) | * Mobile health tracking * Remote consultation | * Accessibility * Real – times updates | * Device compatibility * Network reliance |
| 2.6 | C++,  NoSQL DB | * Wearable integration * Real-time health monitoring | * Continuous patient monitoring * Quick response capability | * Data overflow * Device interoperability |
| 2.7 | Augmented reality,  Cloud DB | * Virtual patient visualization * AR surgery simulation | * Enhanced training and visualization * Patient engagement | * AR device requirement * Learning curve |
| 2.8 | MYSQL | * Predictive analytics * Chatbots for inquiries | * Data – driven decisions * 24/7 patient support | * AI bias concerns * Dependence on data quality |
| 2.9 | Web based PHP,  Maria DB | * Cross – device compatibility * Patient portals | * Broad accessibility * User – friendly interfaces | * Browser compatibility * Security challanges |

**3. Software Requirement Specifications (SRS)**

This document outlines the software requirements for theCare Point Medical Center

. It defines both functional and non-functional requirements to ensure the successful development and deployment of the system.

**3.1 Functional Requirements**

Functional requirements specify the system's features and functions that must be implemented to meet the needs of its users. The Care Point Medical Center consists of two main modules: Admin and Doctor.

**3.1.1 Functional Requirements of Module Admin**

**3.1.1.1 Sign up for Admin**

* The system shall provide a registration process for administrators.
* Admins should be able to enter their personal information, including name, contact details, and a unique username/password.
* The system shall validate the uniqueness of the admin's username.
* Admins should receive a confirmation email upon successful registration.

**3.1.1.2 Sign In for Admin**

* Registered admins should be able to log in securely using their username and password.
* The system shall authenticate admin credentials and grant access to authorized functions.
* Failed login attempts should be logged and trigger security measures if necessary.

**3.1.1.3 Manage Doctor**

* Admins shall have the ability to manage Doctor records.
* This includes adding, updating, or deleting Doctor Information (name, contact, medical history, etc.).
* Admins should also be able to assign Doctor to specific Doctors or wards within the hospital.
* The system shall provide search and filter options for efficient Doctor Management.

**3.1.2 Functional Requirements of Module Doctor**

**3.1.2.1 Sign Up for Doctor**

* Doctors shall have the option to register themselves in the system.
* Registration should include personal details, such as name, contact information, and medical history.
* The system shall ensure the uniqueness of Doctor Usernames.
* Confirmation emails should be sent upon successful registration.

**3.1.2.2 Sign In for Doctor**

* Registered Doctors should be able to log in securely using their username and password.
* The system shall authenticate Doctor Credentials and provide access to their profiles and related functionalities.
* Failed login attempts should be logged and trigger security measures if necessary.

**3.1.2.3 Profile Update**

* Doctors shall have the ability to update their personal information, including contact details and medical history.
* Changes to Doctor Profiles should be logged for reference.
* Any updates to critical medical information should trigger notifications to relevant medical staff.

**3.2 Non-functional Requirements**

Non-functional requirements describe the qualities or characteristics the system must possess. In the context of the Care Point Medical Center, the following non-functional requirements are crucial:

**Reliability:** The system must be available 24/7, with minimal downtime for maintenance. It should also have data backup and recovery mechanisms in place.

**Security:** The system must ensure the confidentiality, integrity, and availability of patient and administrative data. This includes user authentication, role-based access control, encryption, and regular security audits.

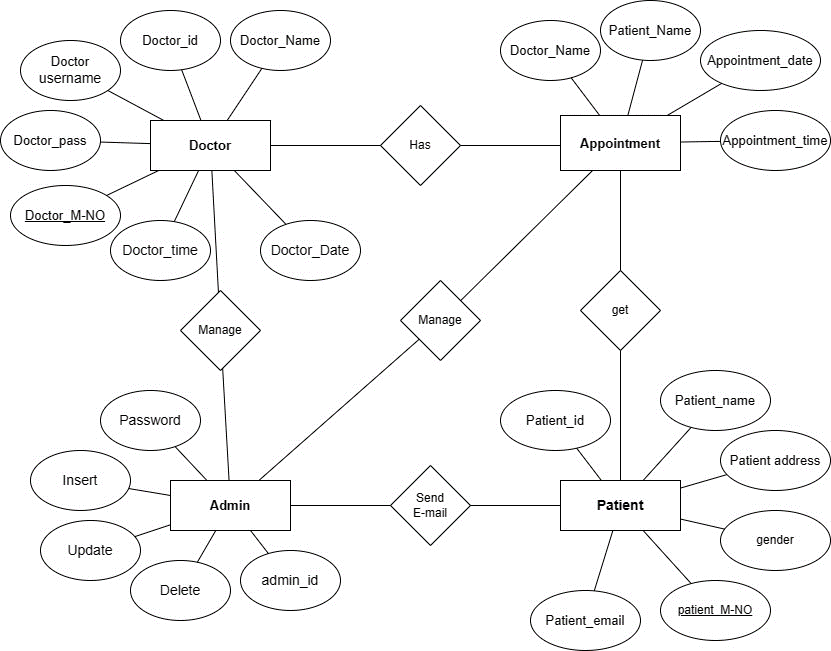
**Efficiency:** The system should be responsive and capable of handling multiple simultaneous users efficiently. Response times for critical functions should be minimal.

**Usability:** The user interface should be intuitive and user-friendly for both administrators and Doctors. Training requirements should be minimal.

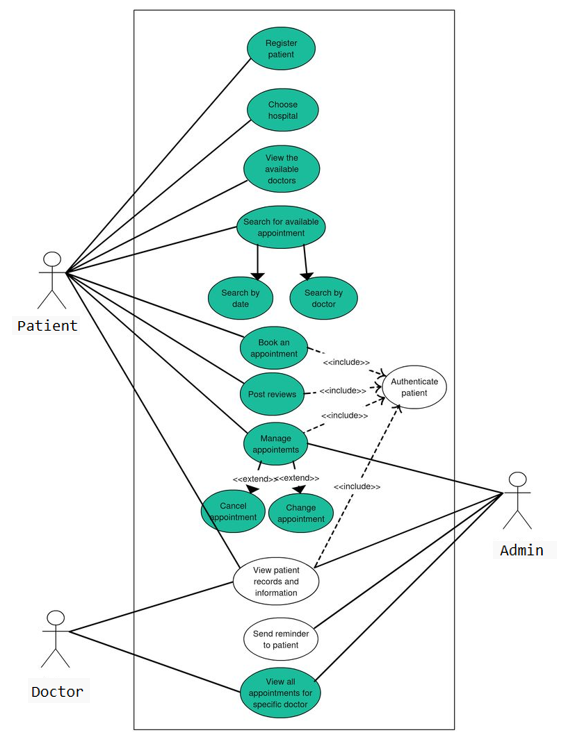
**Economic:** The project should adhere to budget constraints and use resources efficiently. It should also be scalable to accommodate future growth.

**4. Diagrams**

**4.3 E-R Diagram**



**4.2 Use Case Diagram**

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