

# Ai Based Healthcare Application for Urban Communities

Carolyn Gifia S,  
IV year CSE, SNS College of Engineering,  
Coimbatore.

Shivani R,  
IV year CSE, SNS College of Engineering,  
Coimbatore.

Tharun Kumar K S,  
IV year CSE, SNS College of Engineering,  
Coimbatore.

Indhumathi S,  
IV year CSE, SNS College of Engineering,  
Coimbatore.

Surya B,  
IV year CSE, SNS College of Engineering,  
Coimbatore.

Yogadharani M,  
AP/CSE, SNS College of Engineering,  
Coimbatore.

**Abstract:-** This AI based healthcare application approaches to treating urban populations would then involve the urban models of healthcare delivery, recognizing health has been influenced more than ever by the factors of practice and treatment away from traditional medical interventions. Such models of care may include primary care, behavioral health, and social support services in order to assure comprehensive care about the whole aspect of human well-being-be it in the physical, mental, or emotional dimension. These are always developed with an aim at battling the urban health challenges, such as occurrence rates of chronic diseases and socioeconomic disparities through specially devised programs specific to the needs of the respective communities. A focus on patient-centric models ensures holistic care, through individual data, lifestyle, and environment. Application that pay attention to social determinants of health, such as housing and food security, thus reduce barriers to a state of optimal health. Behavioral health integration translates to early mental health intervention, better outcomes, and quality of life. Focusing on health equity and community involvement, this AI based urban healthcare application enhance active participation of patients through preventive, integrated care approaches. This application offer a promising framework to sustain equitable, holistic health care in expanding urban centers. This application introduces a medical assistant to clear the queries asked by the user.

**Keywords:-** AI, Integrated Care Systems, Primary Healthcare, Behavioral Health Services, and Social Determinants of Health (SDOH) to Provide Comprehensive, Patient-Centric Care, Medical Assistant.

## I. INTRODUCTION

The AI based Healthcare Application is designed to cater to the specific healthcare needs of urban populations by emphasizing comprehensive, person-centered care. At the core of this innovative framework lies a real-time doctor appointment system, integrated with behavioral health services, social support mechanisms, and pharmacy support. Utilizing advanced features such as chatbots and pharmacy assistance, this system ensures seamless care coordination, reducing delays and addressing the health challenges of vulnerable populations. This platform provides holistic services, including primary care, doctor consultations, and an interactive chatbot for real-time assistance. Additional features, such as mobile clinics, home visits, and behavioral health services, further enhance its utility. By offering integrated solutions, the model reduces waiting times, improves medication adherence, and enhances care coordination, ultimately leading to better health outcomes. The model also prioritizes data security and privacy, ensuring compliance with healthcare regulations while fostering trust among users. The Urban Health initiative adopts a technology-driven approach to bridge gaps in care for underserved populations. By integrating social determinants of health such as housing insecurity and food scarcity into its framework, the platform acknowledges that health is influenced by environmental and lifestyle factors beyond medical treatment. This comprehensive approach incorporates behavioral health services, recognizing mental wellness as a critical component of overall well-being. Urban Health employs insight-driven strategies, using data gathered from its platform to generate personalized care recommendations. These strategies not only improve health outcomes but also help reduce healthcare disparities. By focusing on a patient-centered approach, Urban Health empowers individuals by giving them control over their healthcare decisions, recognizing that access to quality healthcare is a fundamental right.

The application also emphasizes community outreach and care coordination to address the complexities of urban healthcare. Training and supporting healthcare professionals to embrace these advancements further enhances the overall healthcare experience. By reducing administrative burdens and streamlining service delivery, Urban Health ensures efficient healthcare provision for urban populations.

## II. LITERATURE REVIEW

### A. Online Healthcare Application:

The importance of health care is immense in a society and over the past years, this sector has been evolving to produce a more efficient and computerized system. Bangladesh has also made a significant improvement in the health care system over the years. This paper presents the development of a web application for the general public of Bangladesh where they can store their own medical data and access it anytime, from anywhere. In the Online Health Care (OHC) system, users can register as patients to store their medical data in the database. The system also consists of registered doctors under the enlisted hospitals, who can give free medical advice and prescribe necessary medications to the patients when requested for an appointment. The doctors can view their patient's data and issue prescriptions. The system has been developed using Codeigniter, a PHP framework. The database has been designed using MySQL and XAMPP as the server. The system has been tested, verified and implemented. It provides an efficient way of storing information electronically, a faster communication mechanism between patients and doctors, and also ensures better security for the users. [1]

### B. Study on Artificial Intelligence in Healthcare:

India's healthcare system urgently needs context-sensitive decision-making to enhance efficiency and address challenges like disease prevention and timely intervention. Artificial Intelligence (AI) offers transformative solutions by mimicking human intelligence to analyze patient data, deliver personalized care, and optimize processes. Machine Learning (ML) refines algorithms over time, enabling accurate predictions and improved treatment outcomes. AI applications include advanced imaging for early diagnosis, medication management to reduce errors, and predictive models for outbreak control. AI revolutionizes healthcare delivery, fostering efficiency, precision, and better health outcomes for patients. [2]

### C. A Web-Based Application for Innovative Hospital Appointment Scheduling Using Neural Network:

In order to improve the hospital appointment system and reduce patient waiting time, we developed an intelligent internet-based application for scheduling hospital appointments. A neural network is employed in order to dynamically define the time slots of each doctor's schedule. We present how we encoded the variables of our neural network and we describe the three stages we followed until we concluded in its most proper settings. Finally, we compare its results against the expected ones and prove its reliability. [3]

### D. Smart Medical Appointment Scheduling: Optimization, Machine Learning, and Overbooking to Enhance Resource Utilization:

Scheduling medical appointments plays a fundamental role in managing patient flow and ensuring high-quality care. However, no-shows can significantly disrupt this process and affect patient care. To address this challenge, healthcare facilities can adopt different strategies, including overbooking in medical consultations. While this reduces the risk of unused slots, it can generate associated costs and affect the perception of service quality. In this article, we propose an integer linear optimization model that maximizes the expected utility of a medical center, considering the risk of no-shows and overbooking. For this purpose, machine learning is used to estimate the propensity of each patient to attend their medical appointment, using real data from three medical specialties of a hospital. The results of the application demonstrate the model's ability to assign appointments and perform overbooking efficiently and in an organized manner, implying an improvement in the utility of a medical center and a positive impact on the perception of the quality of care. [4]

### E. Pharmacy Management System:

The purpose of the pharmacy management system is to computerise manual systems and replace them with one. The system should be able to carry out tasks as directed by the pharmacy manager in an economical, practical, and efficient manner. The software handles every aspect of running a pharmacy, including sales, entering new inventory, creating invoices, figuring out taxes and debt, calculating employee compensation, providing product information, creating charts that show various statistics, and overseeing staff work. [5]

### F. Pharmacy Management System using ML

Pharmacy Management System using ML application helps the pharmacist to manage pharmacy in systematic ways. Pharmacy Management system using ML can make the work easier by giving the details of Medicines. It becomes very difficult in big medical stores to handle the details of the medicine manually so by using this system we can maintain the records of all the medicines. Also, nowadays doctors are very busy so, they tend to scribble unreadable prescribed medicines which leads to the problem of misinterpreting medicine names. Patients are sometimes curious to know information about their prescribed medicines before purchasing them. Therefore, this system recognizes handwritten medicine names and returns a readable digital text of the medicine. [6]

## III. EXISTING APPROACH

### ➤ Online Healthcare System

The current technology in the healthcare sector lacks a comprehensive facility that includes a dedicated medical assistant. Medical assistants are increasingly encouraged due to their ability to provide clear, accurate, and timely solutions to health-related inquiries. However, there is no existing technology that integrates all-in-one services such as pharmacy support, doctor appointment scheduling, and

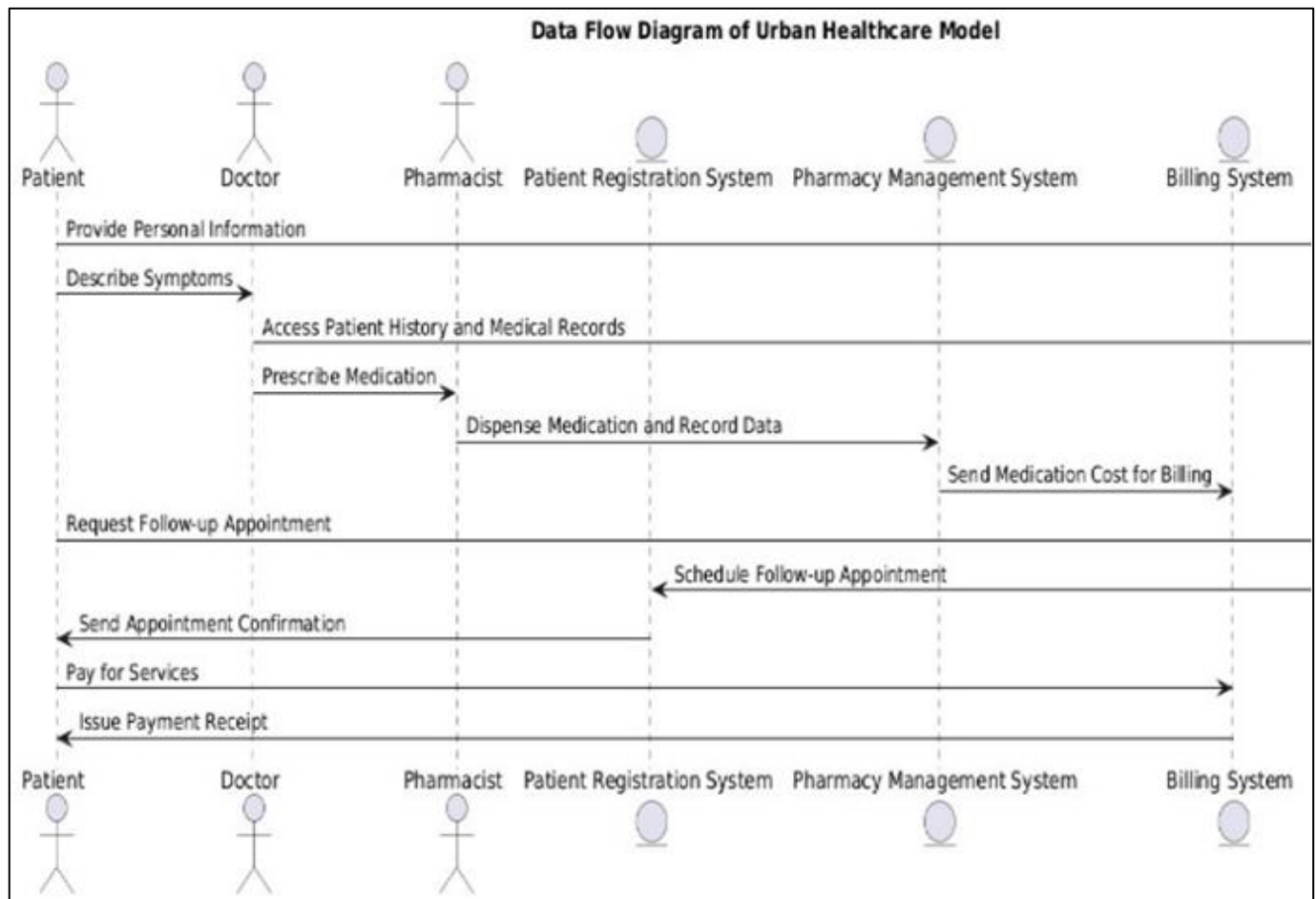
medical assistance. As a result, users often face challenges searching for separate applications to purchase medicines or book doctor consultations. This fragmentation becomes particularly burdensome in urban areas, where busy lifestyles and limited time make it difficult for individuals to visit hospitals or manage multiple applications. The lack of an integrated solution not only leads to inconvenience but also increases the time spent accessing healthcare services.

#### IV. PROPOSED APPROACH

##### ➤ *AI Based Healthcare Application for Urban Communities*

This centralized online healthcare portal changes how patients should access primary care, mental health services, sources of social support resources, and virtual specialists. It provides a unified digital platform that streamlines healthcare delivery, ensuring comprehensive, patient-centered care. This innovation focuses on accessibility, coordination, and holistic well-being. The platform is based on the core of primary care, scheduling routine check-ups, chronic disease management, and preventive screenings with a general practitioner. The real-time update on appointment schedules and reminders enhances accessibility and reduces waiting times. Patients can securely communicate with their doctors, access medical records, and receive care plans to ensure smooth care coordination. The services are offered in the mental health arena, integrating with the growing demands for accessible emotional and psychological support. The portal provides virtual consultations with licensed therapists and psychiatrists while offering resources like guided therapy sessions, self-assessment tools, and educational content. This integration ensures that mental health is treated as an essential part of one's well-being. The integration of social support services addresses several social determinants of health, such as housing insecurity, food access, and financial stability for the users. It allows connecting people to resources in areas of interest, such as housing support, nutrition guidance, or employment, with barriers removed in places where individuals cannot achieve their full health potential. This feature ensures that healthcare is equitable and accessible to unserved populations. The inclusion of virtual specialist consultations is an important feature. Patients can consult

with experts in different fields, such as cardiology or dermatology through video conferencing. It eliminates traveling and accelerates access to care by specialists. An AI-powered triage system also directs patients to the correct specialist based on symptoms, which means that the right diagnosis and treatment are delivered in a timely manner. Data security and privacy are given top priority on the platform with strong encryption, secure logins, and maintains compliance such as HIPAA. Patients maintain their full ownership of their data to the system, hence a way of building trust and confidence. The portal also allows multi-language support, accessibility tools, and mobile compatibility, ensuring usability for the diverse populations-including the elderly and people with disabilities. To engage the users more, the website focuses on preventive care and health education. It provides reminders of vaccinations and screening, symptom checkers, and health tips that are customized. Other valuable resources are educational webinars and articles that inform users to make sound judgments in managing their health. Collaboration between healthcare providers is an integral part of this system. Doctors, specialists, and social workers coordinate to care for the patient by utilizing shared data and communication tools that reduce redundancies and improve patient outcomes. Administrative activities, such as scheduling, billing, and reporting, are automated, so providers can focus on providing quality care. A portal analytics function would enable providers and administrators to glean insights from patient trends, treatment outcomes, and population health. This contributes to better decision-making, targeted interventions, and resource use. This platform brings all factors of healthcare- primary care, mental health services, social support, and specialist consultations-under one roof, reducing fragmentation in the care delivered. This reduces the kinds of challenges urban healthcare faces while making it a seamless user experience. Ultimately, this central online portal redefines healthcare delivery through the wise use of sophisticated software solutions. It increases access, enhances care coordination, and promotes equity in healthcare. The integration of critical services into one convenient platform offers holistic health care in ways that ensure better outcomes and enhanced quality of life for patients.

**Fig 1 Use Case Diagram**

## V. LIST OF MODULES AND ITS WORKING

List of maintenance to ensure ongoing functionality, stability, and reliability for each module. Maintenance focus on verifying that features continue to work as expected after updates, optimizations, or changes to the application's environment.

### ➤ Sign In:

Verify successful user registration with valid data after system or database updates. Check for errors when attempting to register with a duplicate email.

### ➤ Sign Up:

Verify login functionality works after security patches or backend updates. Checks the login credentials by previous informations.

### ➤ List of Medicines:

Allows to view and select a medicine and order them. Collects databases based on its selection.

### ➤ Add to Cart:

This feature allows users to add medicines in cart and allows them to choose medicines based on their needs.

### ➤ Doctor Details:

Confirm doctors details page gives correct information about doctors, loads correctly with updated text, images or media.

### ➤ Book Appointment:

Verify the given details are correct and ensures correct timing for patients to visit doctors.

### ➤ Call Doctor:

Checks call functions like the given number is correct and appropriate to fix appointment with doctors.

### ➤ Profile:

Ensure user profile updates correctly after backend or form field updates.

### ➤ Appointment Status:

It indicates the current state of a scheduled appointment, such as confirmed, pending, rescheduled, or completed, within the system.

### ➤ Medical Chatbot:

Clears queries of the users which are posted by them.

➤ *Pagination:*

Test pagination functionality on product pages after changes to backend or UI.

## VI. RESULT

AI based healthcare application addresses critical urban healthcare challenges through a comprehensive, user-centric platform offering accessible, affordable, and seamless health services. It enhances accessibility and convenience by integrating in-person and virtual consultations, allowing users to schedule, modify, or cancel appointments effortlessly. Pharmacy integration expedites the care process by enabling immediate prescription purchases post-consultation. The platform ensures affordability and transparency with clear pricing for services and partnerships with cost-effective providers, alleviating financial burdens and preventing unforeseen expenses. It saves time and reduces stress by minimizing travel for non-emergency consultations, streamlining booking, and providing 24/7 support via an AI-powered chatbot to address queries and reduce anxiety. Enhanced health outcomes and patient satisfaction result from improved access to providers, health literacy resources, and emotional support, empowering patients to make informed decisions. The model fosters better doctor-patient relationships through personalized consultations, building trust and enhancing treatment quality. Privacy and security are prioritized, safeguarding patient data and instilling confidence in the system. Designed for scalability, the platform accommodates future growth, including psychiatric support and expanded specialist services, adapting to evolving urban healthcare needs. This innovative model delivers a dignified, accessible healthcare experience, revolutionizing health service delivery for urban populations.

## VII. CONCLUSION AND FUTURE WORK

In summary, the efficiency, accessibility, and user experience of urban mobility might be greatly improved by incorporating AI chatbot and health services in urban community. These systems have the potential to enhance sustainable healthcare and meet the changing demands of contemporary cities by streamlining healthcare, delivering interactive solution updates, and presenting intuitive user interfaces. The integration of AI chatbot and medical support in healthcare has the potential to significantly enhance the efficiency, accessibility, and user experience of urban mobility. By optimizing solutions, providing real-time updates, and offering user friendly interfaces, these systems can promote sustainable healthcare and address the evolving needs of modern cities, ultimately contributing to a more connected and Environmentally conscious urban future. The way people use healthcare applications could be completely changed by an interactive system using artificial intelligence.

This will ultimately lead to a future where metropolitan areas are more interconnected and environmentally aware. Furthermore, this paper can be implemented in real-time for public usage using chatbots, user-friendly interfaces. Time management can be done in an efficient manner. By this implementation, one can make the city smart and digitize.

## REFERENCES

- [1]. F. Anjum, "Online health care," in 2018 IEEE 8th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA, 2018.
- [2]. S. Gaikwad, "Study on Artificial Intelligence in Healthcare," in 2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS), Coimbatore, 2021.
- [3]. K. Rammos, "A Web-Based Application for Innovative Hospital Appointment Scheduling Using Neural Network," in 2018 9th International Conference on Information, Intelligence, Systems and Applications (IISA), Zakynthos, 2018.
- [4]. C. Valenzuela-Núñez, "Smart Medical Appointment Scheduling: Optimization, Machine Learning, and Overbooking to Enhance Resource Utilization," in IEEE, 2024.
- [5]. R. Patidar, Pharmacy Management System, International Journal of Research Publication and Reviews, 2023.
- [6]. E. S. Gurav, Pharmacy Management System using ML, Mumbai: International Journal of Advanced Research in Science, Communication and Technology (IJARSCT), 2023.