

Extended Abstract

Title: Hospital Efficiency Improvement Application

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Abstract:

Nowadays, hospitals are facing issues of being inefficient because of the time taken for patients for queuing. This will cause the patients longer wait times and negatively associated with clinical provider assessments of patient satisfaction. Our proposal is a Hospital Efficiency App which aims to combat these issues. It is able to have medicine delivery system for the convenience of patients. In addition to this, the ticket number management will be enhancing to shorten the queuing time. The bills and medical reports will be recorded in our system for further usage as record retention.

Key words: Modern; Efficient; Convenient; Time-saving; Conscious

Introduction

Hospitals are an essential part of any community, providing critical medical care to patients in need. However, hospitals can be complex and challenging organizations to manage, with a wide range of stakeholders, complex systems, and intricate processes. As hospitals face increasing pressure to improve patient care while also reducing costs, hospital efficiency has become a critical issue. One solution is a hospital efficiency application which is the title of this project.

Content

1. Introduction

This project revolves around a solution to one of the critical issues faced by hospitals, which is improving efficiency. Hospitals, being an essential part of any community, provides critical medical care to patients in need. Managing a hospital is a complex task as it involved various stakeholders, intricate processes, and complex systems. The objective of implementing this project is to improve patient care while also increasing hospital efficiency. Hence, a hospital efficiency improvement application is being developed for this project.

2. Problem statement and research questions

Most of the patients, especially wheelchair-bound people that are not convenient to wait for too long as they might feel uncomfortable for waiting too long, they can use the waiting time have more rest. However, hospitals are currently having concerns with inefficiency due to the length of time patients must wait in lines. Longer wait times for patients have a negative impact on healthcare provider ratings of patient satisfaction. The research questions for this project are listed below.

- Why does it take so long time to let the patients take their medicines?
- How does the hospital effectiveness affect experience of the patients?

- What actions we need to take to shorten the time for patients to get the medicines?
- What can be done if the patients find it difficult to leave the house?
- How can we help people take their medications more quickly?

3. Solutions and the impact of innovation

Solutions	Impact
Medicine Delivery System	It can be challenging for patients who use wheelchairs to physically collect their medicine. Patients with long-term prescribed medication need to obtain medicine before the next doctor consultation. This can enable them to obtain the medication without leaving their home.
Ticket Number Management	Most hospitals did not administer medications to patients in order of escalating ticket numbers. Patients need to wait two times, as one is to wait for consultation room and wait to take their medicine at the pharmacy. The patients may be informed via this system, as it saves the patients time while waiting for their turn.
Medical Reports Archive	When patients want second medical opinion, doctors can access the bills and medical reports from the system. It makes the diagnosis more accurate for the clinician. Besides, the digital copy is more convenient and prevents the problem of loss of physical copy.
Appointment Management	Patients require a referral letter from a general clinic in order to see a specialist. This letter-passing process takes many days to finish. Our application allows the patient to digitally upload their referral letter which bypass the trip of sending referral letter just to get an appointment date/time which saves time.

4. Research Methodology

Application Design and Development Requirements:

Hardware	Software
Laptop	Android Studio
Smartphone	Canva
	Framer
	Firebase

Mobile application workflow:



5. Result / Expected Result

- Improved Patient Experience: Our app can enhance the patient experience by providing convenience and accessibility to various hospital services. Patients can use the app to schedule appointments, access medical records, communicate with healthcare providers, and receive real-time updates on their healthcare status. This can result in increased patient satisfaction, loyalty, and trust in the hospital.
- Better Health Outcomes: Our app can improve health outcomes by enabling patients to manage their health and wellness through personalized health plans, medication reminders, and health tracking tools. This can result in improved patient engagement, compliance, and overall health outcomes.
- Increased Efficiency and Productivity: Our app can streamline hospital operations by automating routine tasks and reducing manual paperwork. This can result in increased productivity and efficiency, allowing healthcare providers to focus on patient care.

- **Increased Revenue:** Our app can generate additional revenue streams by offering premium features or services, such as telemedicine consultations, online bill payment, or in-app purchases. This can result in increased revenue for the hospital and improved financial sustainability.
- **Improved Communication:** Our app can facilitate communication between healthcare providers, patients, and their families. The app can enable secure messaging, video conferencing, and notifications to keep everyone informed about the patient's care plan, progress, and status. This can lead to improved collaboration, coordination, and quality of care.

6. Finding and discussion of the project or innovation

The objective of this project is to provide a viable solution for enhancing hospital efficiency. By incorporating an array of features into the application, it is anticipated that it will offer significant benefits to hospitals and healthcare providers in the foreseeable future. However, it is worth noting that this project is a work in progress and there is still substantial room for refinement and improvement. Continuous refinement of the application is needed to ensure its effectiveness and reliability in addressing the challenges and complexities of modern hospital management.

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References

- CAYIRLI, T., & VERAL, E. (2009). OUTPATIENT SCHEDULING IN HEALTH CARE: A REVIEW OF LITERATURE. *Production and Operations Management*, 12(4), 519–549. <https://doi.org/10.1111/j.1937-5956.2003.tb00218.x>
- Gupta, D., & Denton, B. (2008). Appointment scheduling in health care: Challenges and opportunities. *IIE Transactions*, 40(9), 800–819. <https://doi.org/10.1080/07408170802165880>
- Hasvold, P. E., & Wootton, R. (2011). Use of telephone and SMS reminders to improve attendance at hospital appointments: a systematic review. *Journal of Telemedicine and Telecare*, 17(7), 358–364. <https://doi.org/10.1258/jtt.2011.110707>
- LaGanga, L. R., & Lawrence, S. R. (2007). Clinic Overbooking to Improve Patient Access and Increase Provider Productivity. *Decision Sciences*, 38(2), 251–276. <https://doi.org/10.1111/j.1540-5915.2007.00158.x>
- The challenge of long waiting lists: how we implemented a GP referral system for non-urgent specialist appointments at an Australian public hospital. (n.d.). Retrieved February 21, 2023, from rdcu.be website: <https://rdcu.be/c53De>