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Softwarica College of IT & E-commerce | Coventry University

Proposal Report
on

Research on appropriate UX/UI design for better user experience of hospital management system.

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Contents

Title:

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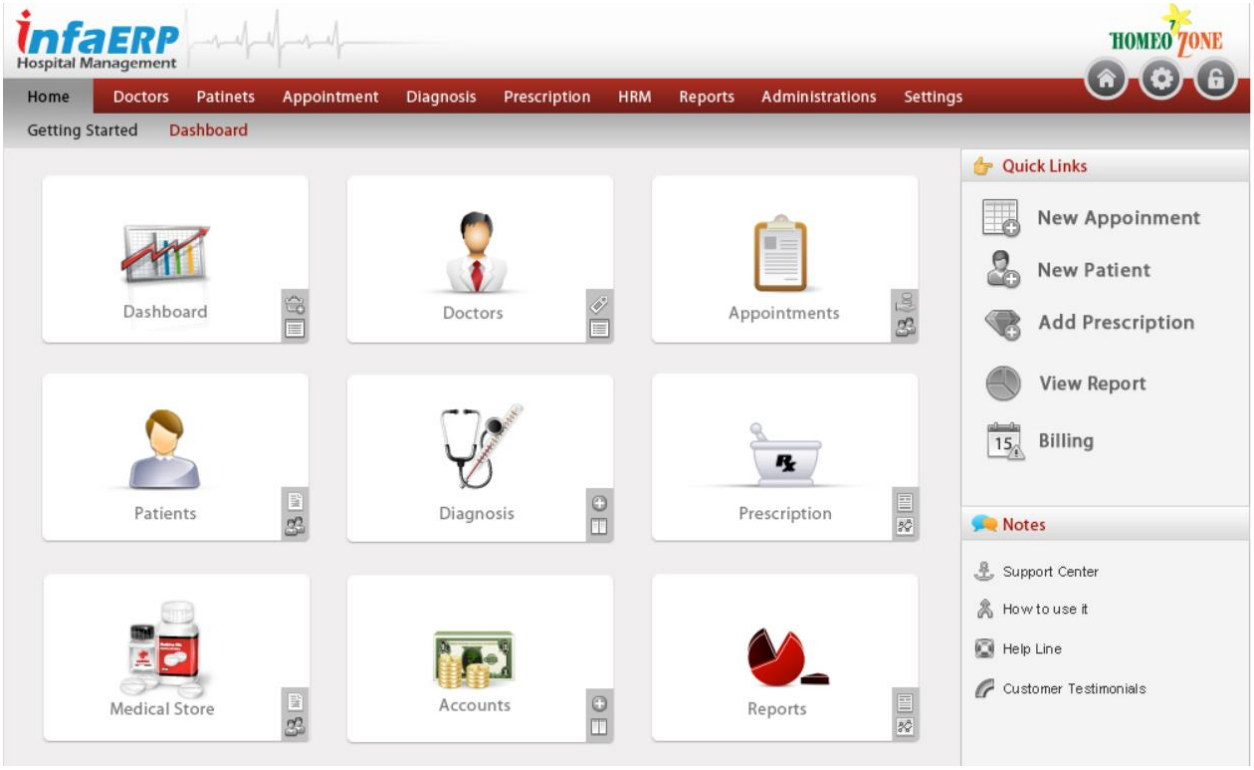
Keyword:

Fig: keywords

Introduction:

User experience (UX) has become a key aspect in the design of products and services. Improving UX design activities in the product development achieve many potential advantages such as reduced development and product support costs together with increased customer satisfaction. (Rekano, 2016) Today's healthcare industry has become increasingly reliant on technology and medical software. While medical software has come a long way in recent years, it can still cause difficulty or confusion for many of its users. In addition, the wide variety of people using the software tools (doctors, nurses, patients, administrative staff, people with disabilities, etc.) makes it even more important for the design of a great user experience (UX, an acronym for user experience) in medical software. Through research, we will collect some ideas for building great UX into medical software for the healthcare industry, along with UX research methods that can achieve big results. (Sharritt, 2022)



To begin with, A well-designed hospital system is a catalyst for a healthier tomorrow. UX design is concerned with all the issues that go into providing an engaging and enjoyable experience for people in both the short and longer term. In this research the ideas of UX and methods for applying a user-centered design (UCD) approach to the design of interactive medical and healthcare applications is collected and provide guidelines and recommendations for the delivery of high-quality user experiences within medical domains. (anon, 2022)

Aim:

Perform a comparative analysis on UX/UI designing on the hospital management system with the implementation of appropriate approach.

Objectives:

- Understand the basic concept of UX/UI design
- Analyze the existing hospital management systems in medical sector
- Review current approaches on UX/UI design
- Understand the weakness (incompleteness) of existing system design
- Apply user-centric design to cover weakness

- Research report for proper documentation.

Justification

Problem statement

Health sectors are the organization or a community that provides medical care to the person who needs the health care. Most of the health care in Nepal is provided by the governmental and private sectors, however neither can meet the worldwide standard. The health sector in Nepal is extremely underdeveloped when compared to international standards. Development activities are taking place in this area, but they are moving along very slowly, and we are not updated of the progress. The main reason behind this problem is the lack of government concern and small communities.

However, to overcome, such obstacles e-health or health information technology (HIT) come forward in action. For which websites and systems is making easy access to hospital and treatment. E-Health (Electronic Health) is cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge, and research. While medical software has come a long way in recent years, it can still cause difficulty or confusion for many of its users (old aged). But Recent UI designs of these websites and systems have some issues regarding the concept, appearance and arrangement of icons and patterns. For which customers gets unsatisfied with the designs also the system does not retain many of its features. It is creating issues among users. For instance, one patient is in emergency, and he must book doctor. But the system is so confusing that he can not find the option for which patient may possibly loose his life due to delay in process to hospital. These problems have been reported many times.

Problem solution

There are lots of systems providing services to customers. However, customers are not satisfied with the current system because of the poor design which do not provide better user experience. Hence, an appropriate user-friendly system should be designed.

Neilson's heuristics principle can be utilized to improve the designs for user centric design and better user experience. Color combination, visibility, flexibility, and efficiency of the design can be improved to make the desirable interface. The UI/UX should be designed to emphasize the old, aged people. It must be user-friendly so it would comfort elder people to use the health care systems.

Research question

- What can be the appropriate design patterns solutions?
- How can the appropriate solution be implemented to achieve efficiency in healthcare management system?
- What are the ethical issues arising during the design process of hospital management system?

Literature review

Literature from different source has been researched for understanding the issues on certain field. For this, ideas and facts have been collected through different searching engines, blogs, PDF books, journal and articles, contents from the experts, and so on. Appropriate desktop-based analysis on different applications that aids in improving the design is done as a secondary literature.

Secondary literature

Healthinote (cognitant)

Cognitant enables individuals to assume command over their well-being through a more profound comprehension of their circumstances and treatment. Specialists in the development of creative wellbeing data and encounters, it applies the utilization of visual, vivid, and intuitive organizations to drive changes in the quiet way of behaving and results. It is likewise the power behind Healthinote, the go-to hotspot for confiding in wellbeing data. Healthinote empowers medical services experts to enhance patient consideration through the sharing of 'data remedies. (Anon, 2022)

The Healthinote application contains an enormous volume of VR and video content, yet existing client input from patients was that a portion of the substance was excessively clinical and put them off utilizing the application. They set up a brief and motivation board to illuminate this character plan. The person would then be utilized in a different region of the application (for instance in the pursuit presentation page) to make for a more durable encounter and to construct trust. In lined up with the plan work itself, they ordered an extensive example library and style guide which contained itemized data and instances of how to utilize and adjust the plans we'd use for both the portable and work area renditions of Healthinote.

Ognomy

Ognomy is a telehealth platform, that gives analysis, counseling, testing, and medicines for rest apnea from board-confirmed rest specialists. Through it is not difficult-to-utilize interface, patients can go to a virtual actual assessment with specialists, get an examination of their clinical history, get locally situated rest tests, and experience straightforward appointment booking, secure installments, and master care. It is simple, advantageous, compelling, and covered by every single significant protection. (2022)

To foster this item idea, they utilized iterative prototyping with differing levels of loyalty. In early cycles, the group created paper models and wireframes utilizing the model Marvel to look for right on time and constant criticism from end clients to further develop the item idea. In the later cycles, the group settled the model screens of the item. Patients can make their records utilizing email IDs

and passwords. Hence, they can interface with the stage through an AI-based chatbot, and outfit segment, protection, and clinical data patients can plan a meeting with rest trained professionals and will get updates 15 minutes before the arrangement. Patients can then meet the rest experts practically through video discussion, request a rest test, survey the outcomes with their suppliers, and look for additional treatment.

Primary literature:

There are so many online companies that have achieved success among them some are Alibaba, Microsoft, Adobe, Google, Amazon and others. All these platforms help people in many ways. For the company to grow they should solve the problem faced by the people, so I had researched these companies and many more application like healthinote, ognomy, etc., implement them in my project. Though there are few applications that can serve medical sector, but the customers are not satisfied with the existing systems so developed. As I understand the value of colors and fonts, arrangement of buttons and navigations from the research, I will implement it in the research project. Furthermore, Chatbot system as implemented in ognomy application can be use here. Similarly, a clearly accessible button for video chat can be designed in the interface so that it will be easy for the people who are not well educated. Moreover, the idea of video play contents which guide the system use and other emergency contact details can be obtained from the already existing application healthinote. Through the secondary research on various literature, ideas are obtained which assist on implementing appropriate buttons, responsiveness, short and informative contents, functionalities taken a high priority in design.

Methodology:

Methodology refers to the process we apply to develop a system. We are implementing agile approach for the development of this application among other methodologies including rapid application development, Devops development methodology, waterfall model, and agile methodology. Generally, Agile refers to communication. It is a set of values and principles for developing efficient software projects by self-organized teams. It is one of the models of the software development life cycle (SDLC). It uses scheduled and repetitive tasks to build software gradually instead of making it all at once (Anon, 2022) This methodology helps to manage software development projects.

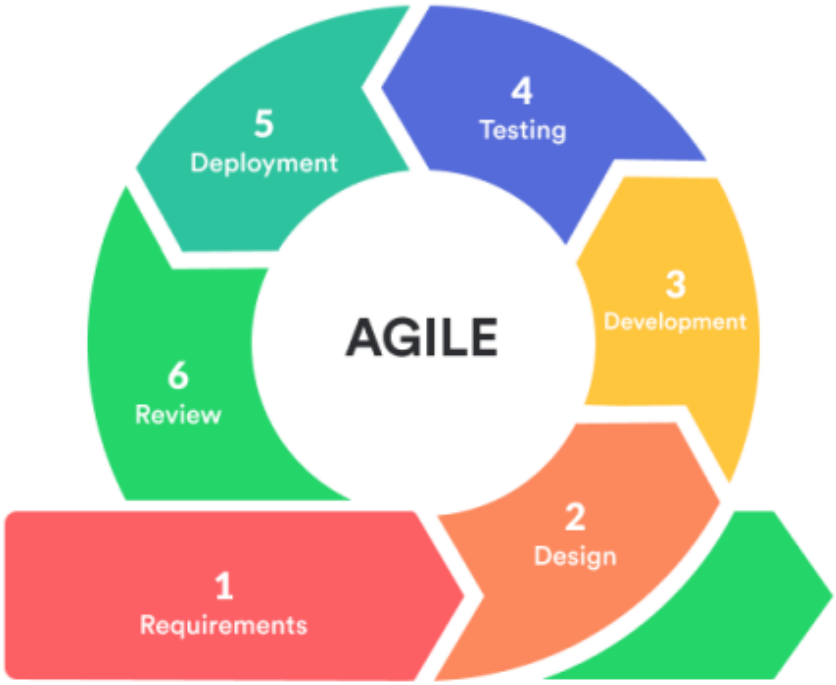


Fig: Agile

In agile, we first divide the project into small sections based on user performance called User Stories. Then we prioritize tasks and complete each of them in 2-week time cycles called iteration cycles. Compared to the previous process or procedure, the agile methodology allows for greater flexibility and anticipates changes.

Tools and technologies

Fig: tools and technology

Adobe XD: Adobe XD is one of the best designing tools used for prototyping application.

PyCharm: PyCharm is a hybrid platform developed by JetBrains as an IDE for python. (2022)

Python: Python as a programming language is used to develop my application.

MySQL: MySQL is used to manage and organize data in database.

Canva: Canva is graphic design tool used for developing this application.

MS word: MS word is a software that allows us to write and edit documents.

GitHub: GitHub is a cloud-based code hosting service used for version control and communication. (Gaba, 2022)

Google: Google is a search engine where we can find solutions of any type of problem.

Project Plan:

Project planning is a discipline addressing how to complete a project in a certain timeframe, usually with defined stages and designated resources. (Lutkevich, 2021)To initiate any project, plans should be made perfectly, so it can be helpful to develop the project in right path. Success of a project depends on the structure of project plan.

	Task	Start	Days	End	Deliverables
2	Proposal				Finalizing Topic
3					
4	Finalizing topic	15/10/2022			
5	Research question	15/10/2022			
6	Practicable study	17/10/2022			
7	Aims and objectives	18/10/2022			
8	Problem statement	19/10/2022			
9	Submit proposal	23/10/2022			
10					
11	Sprint 1		7		Login and Registration
12	Login	6/11/2022			
13	Registration	9/11/2022			
14					
15	Sprint 2		7		Home navigation and patients work
16	Home and Nagigation	13/11/2022			
17	CRUD on patient	16/11/2022			
18					
19	Sprint 3		7		
20	CRUD on doctor	20/11/2022			
21	Working on above work	23/11/2022			
22					
23	Sprint 4		7		Work on symptoms parts and massage
24	CUD on symptoms	27/11/2022			
25	Chat	30/11/2022			
26					
27	Sprint 5		7		Make appointment and lab section
28	appointment section	4/12/2022			
29	CRUD on lab section	7/12/2022			
30					
31	Sprint 6		7		Generate and view Reports
32	Lab test report	11/12/2022			
33	work on prescription/ invoice report	14/12/2022			
34					
35	Sprint 7		7		Daily backup an report submission
36	Backup Files	17/12/2022			
37	Final document				
38					
39	Report				Finalizing Document
40	Draft report	23/10/2022	95	27/1/2023	
41	Draft review	27/1/2023	1	27/1/2023	
42	Edit Final draft	27/1/2023	3	30/182023	
43	Report Submisison	30/1/2023	1	30/1/2023	

Fig: project plan

Risk Plan:

Risk Rank	Risk Name	Occurrence	Impact
1	Topic selection	high	High
2	Finding Relevant case study	Medium	Medium
3	Trouble in doing enough research	High	High
4	Time management	Very often	High

Fig: risk analysis

Conclusion:

In conclusion, appropriate approach has been implemented to improve the UI/UX of the healthcare system (hospital management). Despite the availability of many applications system, UX/UI is not satisfactory and appropriate for all the customers. As a result, simple, easy, and functional system is prioritized.

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SWOT Analysis

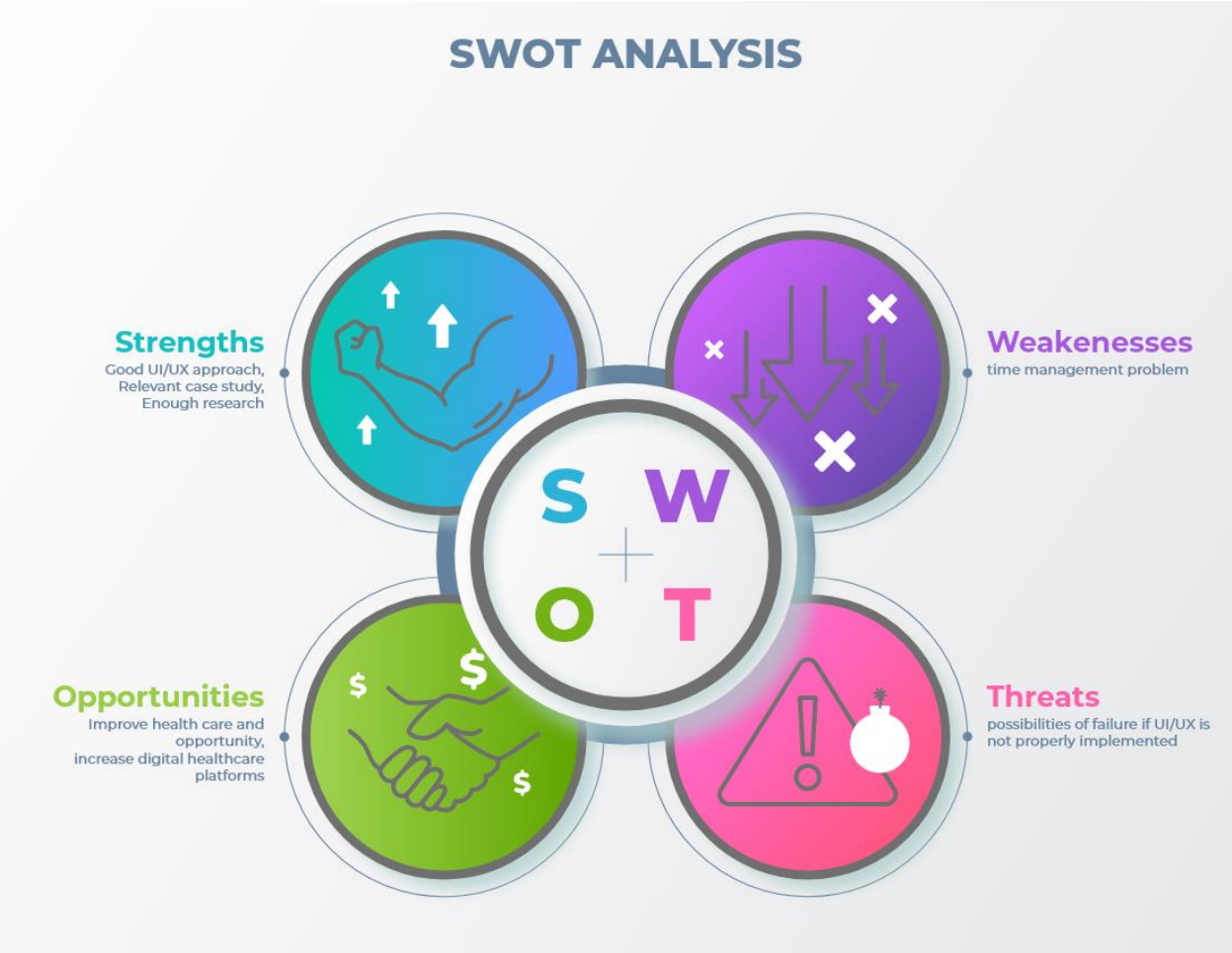

Fig: SWOT analysis