

Designing Intelligent Library as a Response for Artificial Intelligent

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ABSTRACT

Redesigning the Institute's library using strategies based on artificial intelligence in library redesign, creating a more efficient, attractive, user-focused environment that meets the evolving needs of beneficiaries while empowering library professionals with advanced tools for collection management and user services. The motivation of the project is to redesign the institute's library designated for all individuals aged 18 years and above, in order to achieve Oman Vision 2040. A smart library will be built to support services and serve as a center for education and holding seminars and lectures. It was expanded to accommodate a larger number of visitors. The current library has not been renovated or redesigned since the founding of the institute, and it occupies a large part of the building. Establishing a modern library that meets the needs of students, teachers, and employees, while making optimal use of the available space. By introducing smart technologies and exploiting the empty spaces adjacent to the library. This includes implementing an Internet-based management system, smart services, library entrance, reception area, coffee area, storeroom, computer area, self-study rooms, and meeting rooms equipped with a smart board.

Keywords: Artificial Intelligence, Intelligent Library, smart services.

INTRODUCTION

A library is a place that has a collection of books and other resources that people can borrow or refer to. It usually provides a quiet, organized space for individuals to study, conduct research, or simply enjoy reading. First, the redesign related to the goals: increase the number of visitors, enhance community engagement, improve accessibility, add more spaces, and design the library in a way that is compatible with the development of the world and helps students and teachers memorize their time and what he is looking for. Providing distinguished office services with high-quality and effective management using the best information technologies. To facilitate participation and freedom of access to information and participation in the community it serves and to make a great effort to identify the needs and priorities of that community, in addition to supporting the government's pioneering goals and agenda in the use of smart technologies. To achieve Oman Vision 2040, a smart library will be built to support services and serve as a Center for education and holding seminars and lectures. The idea of a smart library is to make it smart using smart technologies. The development of the world and its technologies, the spread of smart phones, the emergence of artificial intelligence, and many developments have contributed to the emergence of smart libraries, especially with the development of the world. A smart library is an advanced and technologically improved version of a traditional library. An advanced library in which technology has become capable of management through the use of the Internet in its management system, collections, and smart services.

Research Problem

The reasons that prompted me to Redesign the Institute library. The library occupies a fair amount of the

building's area, but:

1. Does not Contain many different places for sitting, studying, and reading.
2. Does not Contain private Store for the Books in the same place.
3. Old library, it does not meet the needs of students and teachers.
4. Does not Contain place for public computers.
5. Does not Contain meeting room with smart board and smart technologies.
6. Empty spaces and rooms.
7. Most of the rooms are separated by gypsum board, which makes the space smaller.

METHODOLOGY

After visiting the institute, information was collected from staff to conduct a comprehensive assessment of the current library space, services, and user needs, analyze data, and identify weaknesses in the current design. The library will be redesigned according to specific objectives, such as supporting the government's pioneering goals and agenda in the use of smart technologies. To achieve Oman Vision 2040, it will serve as a center for education and holding seminars and lectures, in addition to integrating smart technologies such as Internet devices and artificial intelligence-based services. AI can address current challenges and improve services. Such as simplifying administrative tasks, improving resource discovery, using chatbots, automated indexing tools, and advanced search engines. AI will be employed in library management software. Making sure to closely track the performance of AI systems during the initial deployment phase to ensure they are performing as expected, managing and maintaining AI systems, and updating AI systems with the latest features and security patches. By following these steps, can effectively integrate and manage AI technologies, improving their services and operations while ensuring a positive experience for users and staff. AI technologies can greatly enhance library operations and services. Such as automated cataloging and classification, machine learning algorithms: to automatically classify and tag new books, articles, and other resources, making it easier to organize and retrieve items. Using AI to suggest books, articles, and resources based on users' borrowing history and preferences. Chatbots to provide users with immediate assistance for inquiries related to library services, book availability, or search assistance. Improving search functionality by understanding user inquiries in a more contextual way and retrieving more relevant results. Archiving, to convert and organize documents into digital format. Accessibility improvements through text-to-speech (TTS) and speech-to-text (STT), to make resources accessible to individuals with visual or reading disabilities. Using AI to track and manage automated check-ins and check-outs and shelf management. Implementing these AI technologies can streamline library operations, enhance user experience, and expand the reach and impact of library services.

ARTIFICIAL INTELLIGENCE

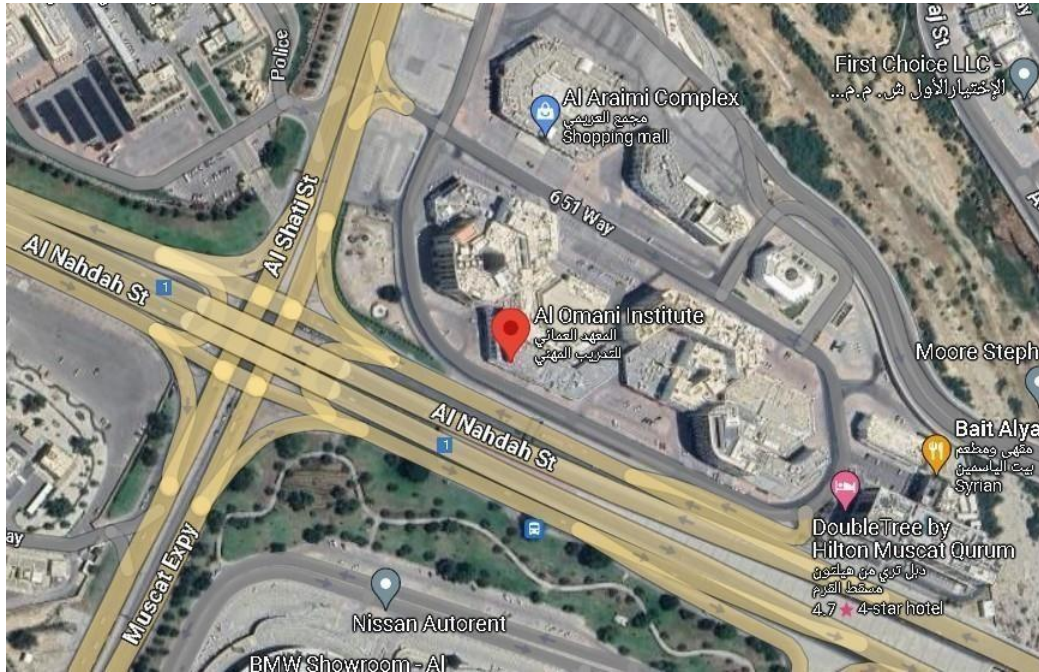
One of the newest developments in computer trends and library applications is artificial intelligence (AI). Artificial intelligence technologies are employed by intelligent library systems to offer students and staff knowledge-based services. Many individuals are interested in the idea of creating computers or other devices that have human-like perception, learning, reasoning, and behavior. The application of artificial intelligence (AI) is considered a significant subfield in information technology. It is being progressively added to enable the innovative and engaging overhaul of library materials.

Design Program

The expected number of visitors will increase after the library is redesigned, due to the addition of different spaces. The place was incorrectly partitioned with gypsum board, and the place was accommodate about forty people. After redesigning the place and removing the gypsum board, it is expected to accommodate more than seventy five people, and redesigning the spaces in a way that makes the place more comfortable and usable for various matters in different places. The library will be modern. includes Library various study sessions and book shelves, Entrance, a Reception, a coffee Area, a Computer Area, Reading Area, a meeting rooms for students

and teachers, and self-study rooms,Store .Modern technology will be used, by installing alarms with surveillance cameras, smart lighting, electric curtains, , and many other modern devices...

The Location



Location on google map Al Qurum, Muscat, Oman

Positive location:

The building view in the main street (Al_Nahdah street and Al_Shati Street),which is making it easy to reach to it and see it.

It is located in a commercial area (various bank branches, shops, shopping mall,restaurants, pharmacy, jewellery stores, Muscat hotel and apartment).

It is easily accessible, as there is a bus stop nearby and there are traffic lights.

Negative location:

Noise From Passing Cars from The Main Street.

Research Questions

The Reasons of Redesigning the Oivt Library?

What is the expected number of visitors Before and after Redesigning?

Will Redesign Effect in The Library Space?

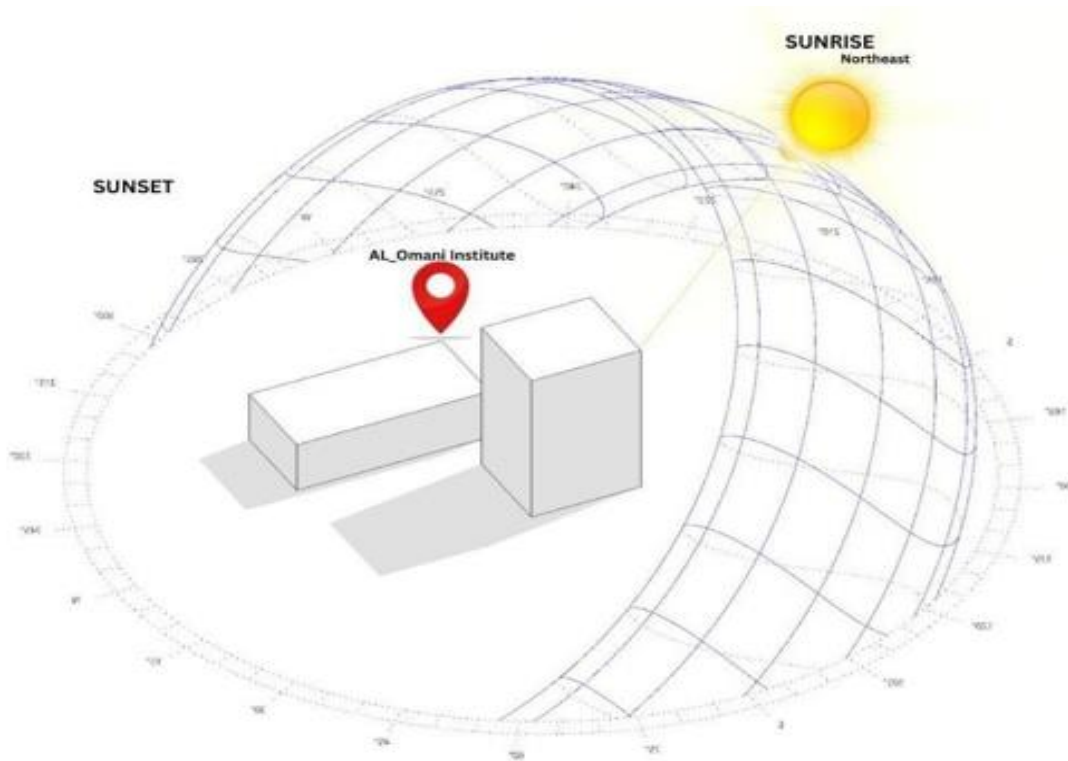
What is the library style?

How does the Smart library contribute to Oman Vision 2040?

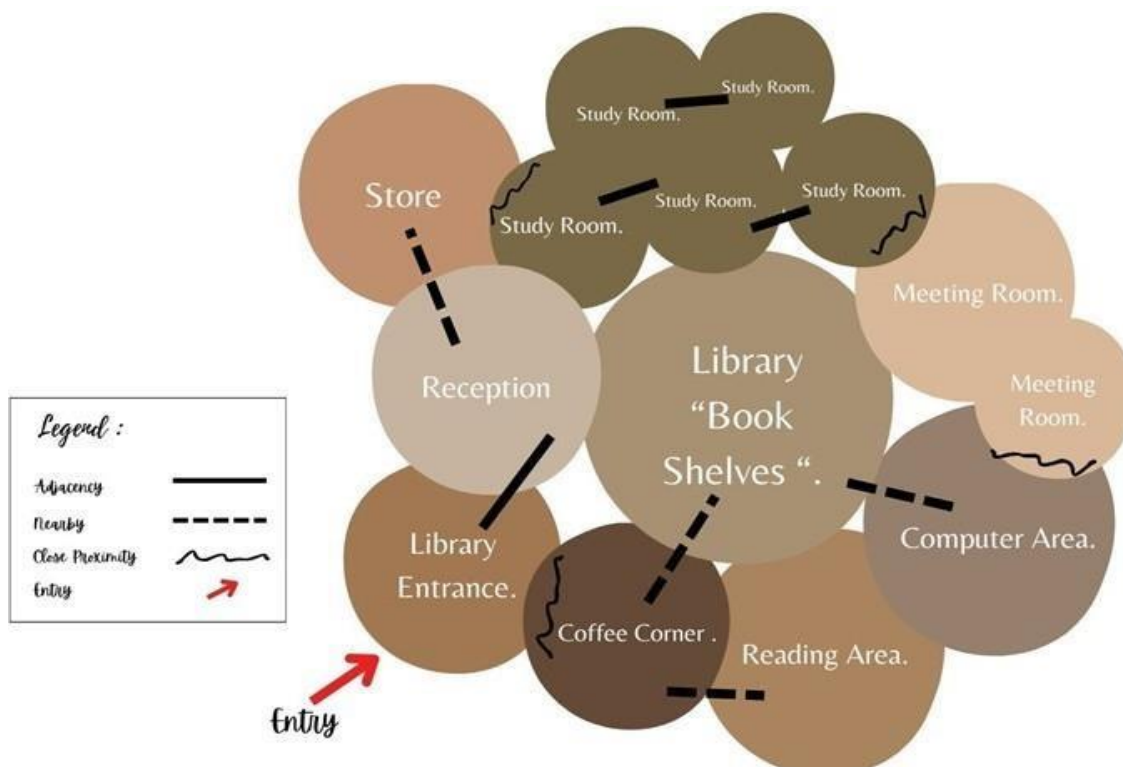
What is the Smart Technology Will be used in Library?

Sun Path

The path of the Sun, known as the ecliptic, depicts the arc-like path it appears to traverse in the sky due to the Earth's rotation and orbit around the Sun. The sun rises from the back side of the institute and the sun sets from the front side. Specific knowledge of the sun's path and climatic conditions is essential for making decisions.



Zoning



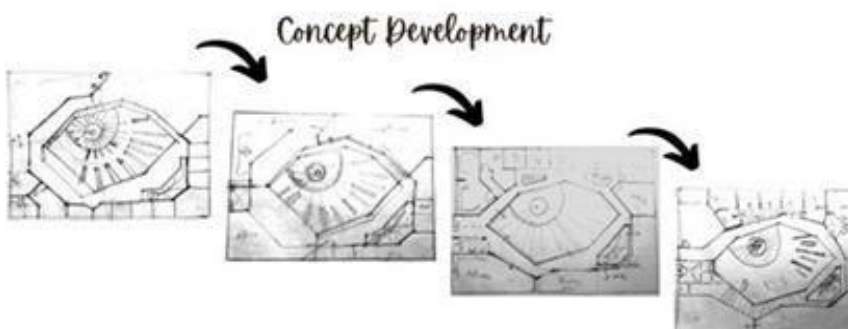
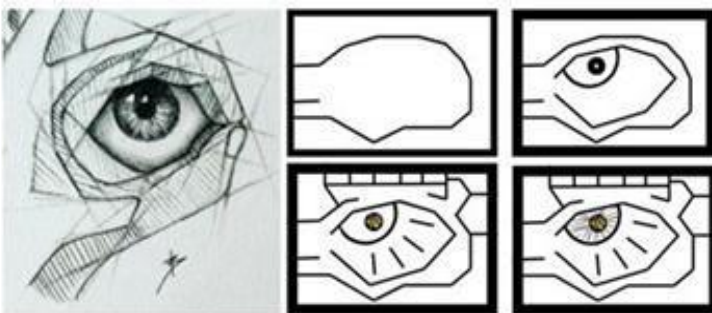
Bubble Diagram



- | | |
|---|--|
|  Storage . |  Book Shelves, Reading Area and Landscape . |
|  Reception . |  Reading Area . |
|  Entrance . |  Meeting Rooms . |
|  Coffee Shop . |  Computer Area . |
|  Self Study Rooms . | |

Concept

Human eye: Because We Read by the Eye the Layout of the library will be as eye .it will applied as modern and new idea with using landscape and adding reading Area you can see the concept from the top of the floor Plan. The inspiration for the library plan came from the human eye. The Human eye is the organ responsible for vision and the most widely used, it is one of the means used to obtain information. More than 75% of the information we receive consists of visual information. Because we read with our eyes, the eye was chosen as the concept for designing the library layout.





Elevations/Sections





CONCLUSION

At the end, the institute's library, an ancient place with books and knowledge, is a treasure to be preserved. But with AI, we sought to make it new, a place where the limits of learning are real. The project's goal is to Redesign the institute's Library of and achieve the goals that were set and designed in line with the development of the world and to help students and teachers. in addition to supporting the government's pioneering goals and agenda in the use of smart technologies. To achieve Oman Vision 2040.

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