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Lifestyle Assistance using Smart Mirror for Better Physical and Spiritual Wellbeing

Mohammad Afif Muhajir, Hibo Sulieman Amen, Akeem Olowolayemo*
Department of Computer Science, KICT, International Islamic University Malaysia.

*Corresponding author akeem@iium.edu.my
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Abstract— Humans live through their lives with many activities or actions, some people have more activities tied to their lives while others have less. It is with these chains of actions or activities can people achieve what they want to do in their life. The problem arises when people do not plan their activities effectively or some may not plan at all due to factors such as the hassle in arranging their lifestyle or daily activities. Lifestyle in general defines how people conduct their daily life to meet their own needs in many aspects and by itself may affect people in many ways because it is the concept that governs how humans do their activities or how they live out their daily life. Unorganized lifestyle may cause more negative influences than people think, it may even affect their own overall health in physical or spiritual aspects. In the discussion of physical and spiritual health, we can define physical health as the condition of our body taking into consideration the absence of disease and fitness level. As for spiritual health or wellbeing, it is mostly known to be connected to people's mental health but in this research, we want to accommodate Islamic values of spirituality and how it helps maintain people's overall wellbeing. In accordance with the growing advancement of technology there are now many ways to help people organize their daily tasks and activities also their overall lifestyle such as an application that provides daily planners with notifications to help being reminded of their own plan for the day. It is with these points we would like to propose a project into studying general activities that supports a good lifestyle from physical and spiritual wellbeing while also incorporating the usage of technology in the form of an IoT (Internet of Things) device, in this case a Smart-Mirror, to help organize a good daily planner.

Keywords— *Daily Activities Planner, Lifestyle, Wellbeing, Smart Mirror, Digital Mirror, Digital Personal Assistant, IoT.*

I. Introduction

In general, the typical way of life of an individual, group, or culture is considered a lifestyle. A well-balanced diet, regular exercise, enough sleep, happiness, and positive thinking are all essential components of a healthy lifestyle. Living a healthy life is vital for an individual to be happy and feel good in the present and for the future. It also helps to live longer and to be less prone to sickness and diseases. According to WHO, 60% of related factors to individual health and quality of life are correlated to their lifestyle [1], [2]. To have a vibrant, healthy life, it is essential to pay attention to one's spiritual, emotional, mental, and physical health. It is often the case that when people think of being healthy, they might only consider their physical bodies. However, it is important to consider one's emotional, spiritual, and psychological health as well to have a well-rounded healthy lifestyle.

One of the ways to ensure a rounded lifestyle is to plan one's activities to encompass all the aforementioned aspects of human health. A planner can be a way to structure a healthy and appropriate lifestyle suitable for each person. An effective planning for a daily routine that takes into consideration all necessary activities can enhance a healthy lifestyle leading to better wellbeing.

Spiritual wellness is another factor that is often overlooked but have been identified to constitute in one' attainment of overall wellbeing. Spiritual Wellness or spiritual health is a concept that is lesser known but has an impact towards achieving peacefulness and meaningfulness in the life of an individual that may serve as a ground to deal with hardships. It is often defined and influenced by other aspects such as religion, belief, and values [3].

It should be worth noting that research has delved into the connection between spiritual health and how it can affect other elements of human's wellbeing. Spirituality and health-related behaviours can play a significant role in defining psychological well-being. Personal focus on physical health and the human body or psychosocial health and the human mind and spirit, have an immense impact on psychological well-being [4]. Spirituality can be identified and improved through many means such as meditation, religious activities (i.e. joining a faith group or conversing with a spiritual guide or chaplain). For Muslims, for instance, there are several ways to connect and improve spiritual health through actions that bring closeness to God such as reading holy books, prayer, fasting and reflection. With this information, it could be deduced that incorporating spirituality alongside physical and mental health can further help to achieve overall wellbeing. It can provide possible type of actions that can be incorporated in ones routine for that betterment of one's health. This can be further managed and enhanced with the assistance of modern technology.

In the past decades, there has been steady and significant growth in the use of smart devices with several applications for different aspects of human life. Modern technology has produced amazing tools and resources that have made it possible to access useful information and opening new opportunities for better quality life and enhanced way of life. This study proposes the use of a smart mirror for monitoring and enhancing lifestyle and overall wellbeing. Smart mirror

has been chosen in this study due to the central role a mirror plays in daily life and every home. A mirror is one of the tools in every home that is used every day for things like brushing teeth, shaving, and applying cosmetics to the face and assessing other parts of the body. Many people see themselves or, more accurately, their reflections at least a few times each day in a mirror. Because of this widespread use, it might be interesting and beneficial if the mirror could communicate and assist in the same way as a real person or digital assistant. The idea behind this is that combining the concept of a mirror with technology might be able to replace the emotional, spiritual, and physical need of lost relationships. As we know 80% of older adults who are older than 65 have at least one chronic illness, have lost some loved ones and most likely living alone [1].

The advent of Internet of Things (IoT) technology has provided more opportunities for the use of sensors to acquire data, especially remotely. IoT has the potential to revolutionize the traditional healthcare system by making health management more efficient. IoT technology can be used to connect smart devices, machines, patients, doctors, and sensors to the internet through the use of sensors. This allows for more efficient health management and can help alleviate the strain on healthcare systems caused by an aging population and a rise in chronic illness. IoT technology can be used to monitor patients remotely and provide real-time feedback to healthcare providers. This can help reduce the number of hospital visits and improve patient outcomes. Additionally, IoT technology can be used to improve medication adherence by providing reminders and tracking medication usage. Finally, IoT technology can be used to improve the efficiency of healthcare systems by automating tasks such as inventory management and scheduling. The use of IoT technology has changed people's lives by saving time for healthcare workers and patients alike [5]. Since a Smart Mirror is a part of smart devices found in residences, it can also act as a device which assists in monitoring the health of a user and regularly update and send reports of patients to respective authorities in the medical field [5].

In this study, we attempt to design a system using Smart Mirror as a digital assistant that will enable individuals to enhance their lifestyles and overall wellness. Using digital mirror as a digital assistant can help people to schedule their life by providing a variety of basic functionalities in the form of weather updates, news updates, clock and alarm settings, appointment schedule, daily tasks monitoring and spiritual and emotional activities monitoring, etc. all can be made available by integrating APIs into the system. A user can access the Smart Mirror either by voice input using the inbuilt microphone or through touch using a touchpad.

II. Related Works

With the advancement of technology, many aspects and factors of human's life can be affected, one of those in this research case is Self-Healthcare (SHC). SHC is supported by many inventions and innovations such as IoT, service robotics, cloud computing, etc. Many people nowadays, especially millennials, have grown accustomed to a rather unhealthy lifestyle that mostly warrants health issues. These issues commonly are being checked by frequent visits to the doctor, but now with the help of technological implementation in the form of integration of IoT elements such as a Smart-Mirror and wireless devices to monitor real time health and fitness [5].

Across the years, people's busy working schedules have led to a decline in the amount of time they spend reading newspapers on a daily basis, resulting in a lack of awareness about current news. Another significant time-consuming aspect of their routine is the time spent changing appearances in front of a conventional mirror. However, the introduction of smart mirror systems in households has emerged as a solution to address these challenges and enable individuals to accomplish more in less time. The study in [6], [7], implemented a Smart Mirror to save time by combining functionality and convenience. This innovative device not only serves as a conventional mirror but also provides valuable information at a glance, allowing individuals to stay updated with current news and events. By integrating a display into the mirror, the smart mirror acts as a time-saving tool, offering users quick access to relevant information while going about their daily routines.

Mirrors have been around for almost 200 years and have been a high-end piece of decor. Now adding technology, produces one of the most beautiful products with a lot of potentials. Some conditions like anxiety, stress, and depression have affected many people's health. According to estimates, depression affects 4.4% of the world's population, and anxiety disorders affect 3.6% [6], [7], [8], [9]. Depression is a serious mental health condition characterized by a lack of interest in enjoyable activities, sadness, guilt, low self-esteem, trouble sleeping, and difficulty in paying attention.

Smart mirrors and IoT can benefit individuals in numerous ways especially considering the mental issues aforementioned. Previous studies such as [6] has proposed that the growth of mobile applications has provided opportunities to implement a non-intrusive way of combating a sedentary life, which has been found as one of the big factors for many health-issues, by developing a mobile application that can provide solutions to promote physical activity and active engagement to prevent or minimize sedentary lifestyle.

Other studies have equally consodered the effectiveness of using digital mirrors for physical rehabilitation. For instance, the study in [11] evaluated the effectiveness of pose estimation models as enablers for a smart-mirror physical rehabilitation system, with the objective of providing digital solutions to support older adults in extending their independence. The proposed system utilizes medium or small-sized smart mirrors that cover essential body areas, particularly focusing on the face and shoulders. To assist

individuals in their physical rehabilitation routines, a comprehensive list of exercises and a management system are integrated into the system. The study investigated various pose estimation models, considering their suitability and performance for the targeted rehabilitation purposes.

One of the main focus in this study include integrating spirituality and value into the proposed system with the expectation to help users gain a more serene lifestyle through physical or mental aspects of healthy lifestyle with a spiritual reinforcement. This is in agreement with the study in [10] that identified mental health as one aspect of human life that connects to psychological wellbeing as a whole, and how spirituality is a crucial factor to understand both concepts. Furthermore, the right spirituality provides whoever believes with means to relate spirituality and mental health to the values introduced inside the religious principles especially learning from the lives religious personalities who faced more challenging circumstances, hence, providing characteristic examples to learn from and implement in one's life as one of the ways to elevate spirituality, and with it, overall mental health and wellbeing.

In the study presented in [11], spiritual health is considered abstract, subjective, and complex, as well as constantly changing depending on context and religion. Spiritual health has also been found to be connected to some diseases and physical health problems. The study employed specific methods that consist of theoretical, fieldwork, and analytical processes backed by studies of literature to acquire reliable evidence to further provide significance for spiritual health to wellness and support in some healthcare fields, such as nursing. This research provided critical foundations for the approaches in implementing regular spiritual activities to help in attaining better lifestyle and overall wellbeing.

Moreover, in [12], the authors researched the beneficial effect of applying the lifestyles of religious leaders such as Muhamad or Jesus Christ in general daily activities to gain a healthier body by combatting causes of disease. For instance advocating basic eating etiquette and suggestions to do more physical activities could potentially be useful to combat diabetes and obesity. The researchers showed that following dietary and light fitness information validated by dietitian and health experts to provide relevance to better people' quality of life from the aspect of physical health and wellbeing.

In a similar application that helps people to lead a smart life, the authors in [13], implemented voice-activated controller as a module inside the smart mirror that can handle many tasks, such as creating a schedule and task reminder. This is similar to our aim in this study, but with the exception of using traditional key-in input and expanding the idea of suggestion-supported schedule planner that helps people with providing them relevant and beneficial activities and doings.

Other authors such as [7], [14], have focused using smart mirrors to provide health monitoring for the elderly to monitor their situation when they are at home. The researchers in [11] developed a smart mirror for elderly emotion monitoring using a semi-electronic display device designed to detect and identify initial signs of depression in the elderly. It functions as a smart mirror, providing users with daily information such as weather updates, events, headline news, currency rates, stocks, and reminders. The device is a communication tool for telemedicine, making it easier for elderly patients at home to feel more connected to their doctors. Long-term patient diagnosis, follow-up, and treatment are all made easier by this. While dressing themselves in front of a mirror, elderly users can view information about their mental health. In the same way that a housekeeper or nurse would, information on their daily emotions will be collected to long-term monitor their health. We also incorporate additional systems like a chat bot, facial recognition, voice/speech recognition, and posture recognition in order to observe the emotions of elderly users.

III. Methodology

A. *Smart Mirror Design & Development.*

In this study, the first major effort is devoted to assembling the smart mirror, as an IoT device containing a two-way mirror with an electronic display behind the glass. The display can show the viewer various kinds of information in the form of widgets, such as weather, time, date, and news updates. The usage for this device would be as a platform to house and initialize the planned lifestyle assistance algorithms and procedures with all its functionality installed within the smart mirror.

The aim of this work is to take advantage of people's common act of using a mirror, usually at the start of their day to groom themselves, and promote an alternative usage of common mirrors that is hoped to provide more efficiency in doing tasks in this case planning for daily hustle with technological upgrades.

B. *Lifestyle Assistance Application*

The planned application would also be equipped with the ability to suggest and include some of supportive activities that may range from physical exercises to activities that support the wellbeing of the mind; especially in accordance with the spirituality dimension. The application algorithm is also incorporated to suggest motivational and spiritual quotes as well as interface with health care providers, personal trainers, therapists, and other caregivers specifically recommended for that has been regarded as a way to increase overall personal wellbeing and spirituality as well as training users for improved mindfulness.

The system development life cycle (SDLC) is considered at all stages to develop the system in this project. Specifically, the Agile System Development methodology, which consists of six main stages as shown in the figure, is being followed

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for developing the smart mirror application. Starting with the Project Requirement Initiation, time was spent on planning and discussing the project vision and the ROI justification. After the system requirements were defined and the way it would function and assist users was determined, data was collected and elicited from random people who felt interested in the topic. Then, the plan and duration of the application were discussed by the authors. Additionally, the objectives and significance of the system were listed down.

Next, stage 2, which is the Designing Phase, was initiated, where the focus was on Software Design and the UI design of the application. Following that, stage 3, Development and Coding, was carried out, with the focus on producing code and translating design documentation into actual software. Moving on to stage 4, Integration and Testing, efforts were made to ensure that the software is bug-free and compatible with several existing similar applications that have been built previously. Furthermore, deployment and review stages were performed, where the software was prepared for deployment and the implemented system's performance was evaluated. Feedback from users and stakeholders was gathered during the review process to identify areas for improvement and address any remaining issues.

C. *Application Modules and Features*

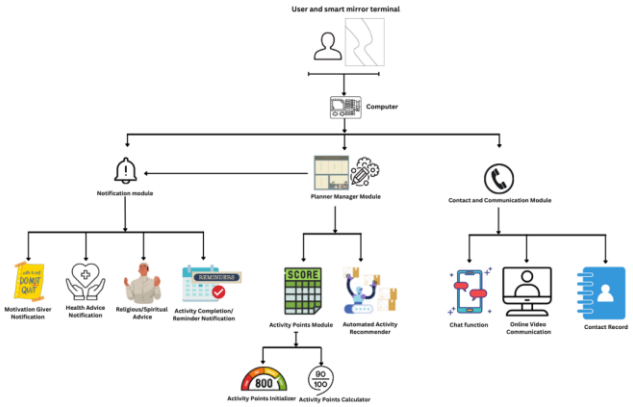

Fig. 1. Visual Representation for Lifestyle Assistance Modularity

Throughout the project, the Agile principles have been followed, embracing flexibility and adaptability, allowing for continuous improvement and customer satisfaction. In each stage of the Agile System Development methodology, a dedicated approach has been adopted to create a well-structured, high-quality system that aligns with the project's objectives and meets the stakeholders' needs.

One of the main goals of developing this lifestyle assistance system is to help people with planning and organizing their bustling activities with many features and modules that are expected to bring a better lifestyle for the user. The detail functions provided by the system are as described below:

1) Activities Planner.

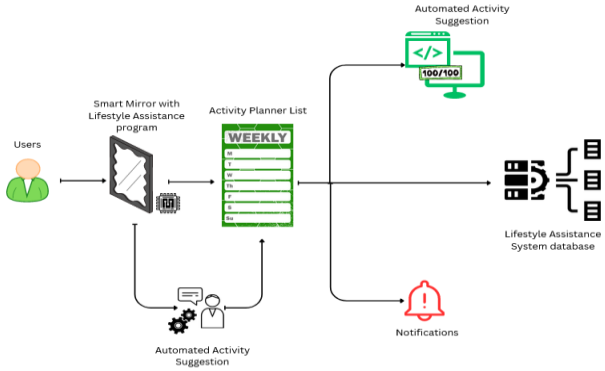

Fig. 2. Activity Planner module connection representation

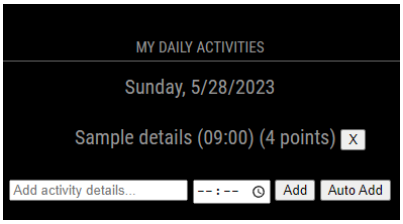

Fig. 3. Module representation for the activity planner

This module will serve as the primary unit of our proposed system. As described previously, this module's main objective is to give the users of this system the ability to manage their activities, tasks, or duties especially those considered to be done routinely so that they can plan ahead to give them an early grasp on what those activities entail.

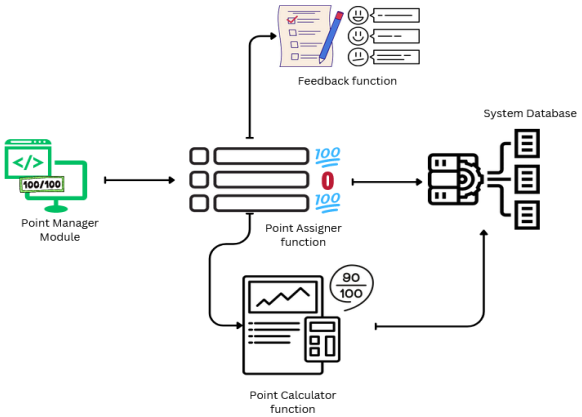

Fig. 4. Points manager module representation

The activity planner will record elements that are commonly used for activity details, such as what should be done, when and where those endeavours will take place. Other parts of this module are point assignment and counters. The activity planner is connected to the notification module to help notify users on upcoming activities, and also check if the user has done some required activities by recording the acknowledgement of completion of the activities. The

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notification module also provide notifications on useful health tips and advices about spirituality wellness.

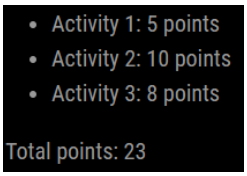

Fig. 5. Total points module representation

2) Point manager functions.

As described in the planner module description above, this is one of the internal functions included inside of the aforementioned module. The objectives of these functions are to allocate a set amount of points into each activity that the system user has assigned into the planner and to count the points accumulated by completing each activity and set the specific period of time. A set of formulas has been theorized to help us with the points-related module that is part of the daily activity planner. Below are the expositions of each formula:

3) Point-Setter functions.

The main idea of this function is to set the weight for each activity point. The initialized point for each activity will differ based on the type of activity that is input into the planner list. This table will be used to determine the point value for each activity in the activity planner. The process starts by determining the type of activity; activities that are automatically set by the planner system will be under the type "Extra Activity" which could be either "Physical" or "Spiritual" boosting, while activities that the user set themselves into the planner will always count as "Mandatory". After determining the type and its importance of each activity, it will assign the "weight" - Activity Weight (A_w for short). All the numbers provided in the table above are hypothetical.

Table I
Point-setter criteria

No	Activity	Type	Importance	Activity Weight (AW)	Initial Point (IP)
1	Activity 1	Main User Activity	Mandatory	Mandatory = *1	10
2	Activity 2	Extra Activity (Physical-Boosting)	Preferred by User or Recommended	Recommended =*0.5	5<=10
3	Activity 3	Extra Activity (Spiritual-Boosting)	Optional	Optional =*0.25	3<=10

After determining the A_w for each activity it will be multiplied with the initialized point for each activity. Initial points other than Main User Activities (which only covers Extra Activity provided by the system) will be determined based on research on how important or recommended for each activity. Therefore, if an activity is completed, point is multiply by 10, whereas if an activity is missed, it deducts 1.

The representation of the formula for the activity point (Ap_x) initializer would be:

$$Ap_x = A_W * IP$$

4) Point Accumulator Formula

The Point Accumulator will calculate all gathered points from the user's completed activities in a day. Each point will be added and then divided by the total amount of points that is available to be achieved in a day in the planner and then it will be multiplied by the full percentage to show the cumulative achievement within a day. The planner prompts the user for confirmation of any activity completion if the time set for each activity is reached. The calculation process is represented as the formulas below:

The summation of all activities points gathered compared to maximum activity point achievable is given as

$$\Sigma Ap = \frac{Ap_n}{Ap_m}$$

Then the addition of all activities points gathered is computed as

$$Ap_n = Ap_1 + Ap_2 + Ap_3 \ldots + Ap_x$$

And the addition of maximum activity point achievable can be written as

$$Ap_m = Ap_1 + Ap_2 + Ap_3 \ldots + Ap_x$$

5) Feedback subfunctions

This function is directly related to the utilization of points and their accumulation in the system modules. After the final points are gathered and calculated, appropriate feedback messages will be shown to the user to reflect their quality of achievement in finishing daily tasks and additional beneficial activities.

6) Notification Module

This module is a component that will provide notifications to the user about many other features. This module will provide a display notification of users to track activities set in the activity planner. It also include notification of daily

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general health advice, spiritual or motivational quotes or reminders from the Qur'an and Sunnah or from other religious books depending on the faith of the user, to improve spirituality, emotional or overall wellbeing.

7) Mobile application

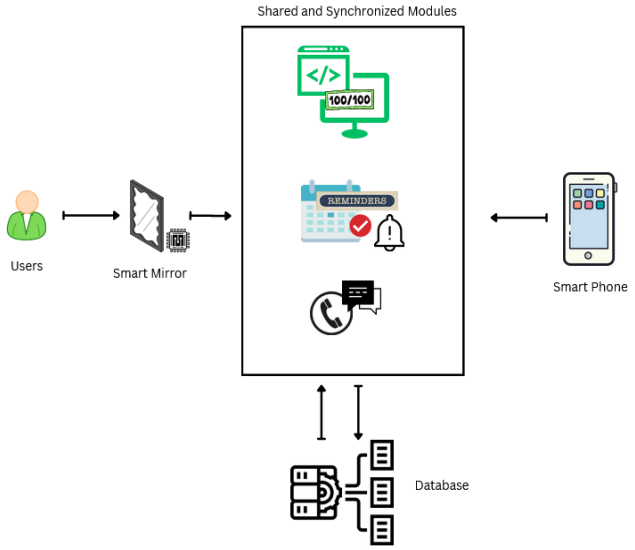

Fig. 6. Shared functionality available to Mobile App version

The planned smart mirror program module will include an application that will be available on mobile devices. This is to allow users to keep up with whatever plans that they have initialized in their smart mirror. The application will share the main functionalities of the smart mirror program and both devices will share data from the same database system.

8) Contact and Communication Manager

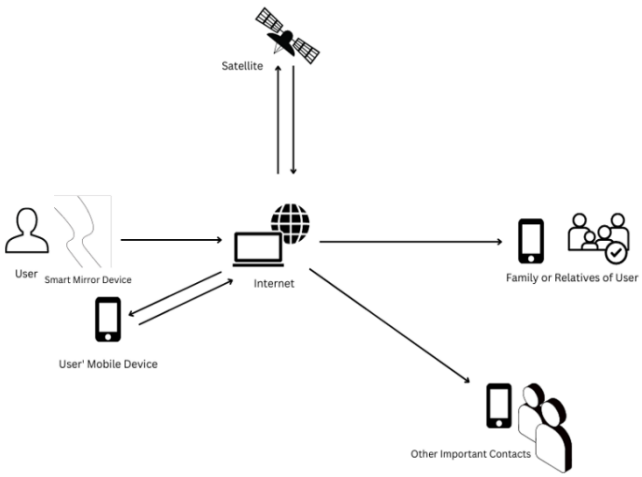

Fig. 7. Contact and communication connection flow

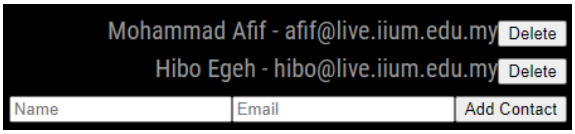

Fig. 8. Sample presentation of contact module

The system has contacts feature, which enables users to add and contact any relevant individuals such as their designated family members or relatives, or even their doctors and other related parties. It equally provide the users to directly share their planners and progress records or improved lifestyle condition. The available connection is as shown in Fig. 7.

D. System Features

The system features are divided into a few sections which are Planning and Initiation, System Flow, System Design User Interface.

1) Plan & initiate system features

During the planning and initiation phase, the system us as the development team allocated significant time and resources to carefully outline and establish the project's requirements. Both functional and non-functional requirements were meticulously documented, aiming to deliver a system that optimizes the efficiency of the product creation process while effectively managing user expectations. In the initial phase, all the identified requirements were successfully identified and implemented, ensuring the system's functionality and usability. However, as the project progressed into phase 2, the team decided to introduce additional features by creating two distinct versions of the system: a smart mirror version and a mobile application version. This decision was driven by the goal of providing users with more choices and enhancing their overall experience. The development work for these versions is currently underway, with a strong focus on meeting the requirements established in early phase while accommodating the unique functionalities and user interfaces of each version. The team is committed to ensuring that both the smart mirror version and the mobile application version are robust, user-friendly, and aligned with the project's objectives. By diligently addressing the requirements and continuously improving the system, the team is optimistic about the future success and effectiveness of the project. The ongoing efforts and dedication put into the development process aim to deliver a high-quality system that fulfils user needs and enhances the overall product creation experience.

2) System Flow

To illustrate and depict the system's functionality and flow, system flow diagrams was incorporated. These diagram serves as visual representations that showcases the sequence of activities and interactions within the system. By

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utilizing one of different types of system flow, a comprehensive overview of the system's behaviour and functionality was effectively communicated. For the users to able to gain a better understanding of the system's functionality and flow. The diagrams serve as valuable communication tools, enabling the project team and Users to visualize and analyse the system's behaviour, identify potential bottlenecks or improvements, and ensure alignment with the desired system objectives.

3) System Design User Interface

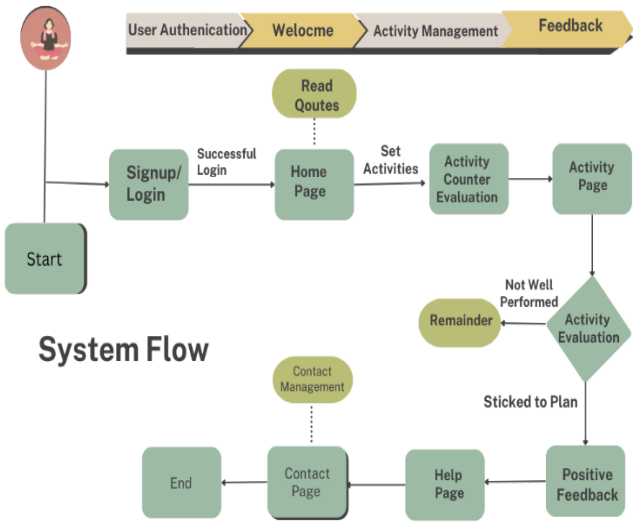

Fig. 9. Lifestyle Assistance System Flow

E. System Discussion

Two aspects of the system, the functional and non-functional requirements of the Lifestyle Assistance application would be discussed in this section. Functional requirements encompass the specific functionalities and features that the application must possess to meet user needs. These include modules such as Register and Login, Planner, Calendar, and other essential components that enable users to manage their schedules effectively. On the other hand, non-functional requirements focus on the qualities and characteristics of the application, such as performance, security, usability, and reliability. These requirements ensure that the Lifestyle Assistance application not only delivers the desired functionalities but also provides a seamless and secure user experience. By comprehensively addressing both functional and non-functional aspects, the system lays the foundation for a robust and user-centric application.

1) Functional Requirements

We used to build software or computerized device interfaces with an eye toward style is known as user interface (UI) design. It has been a strive to create user-friendly and enjoyable interfaces. The Register Page, the Login Page, the Planner Page, the Activity Page, point counter page, and the Contact Page are the six different pages in the Life Assist Application.

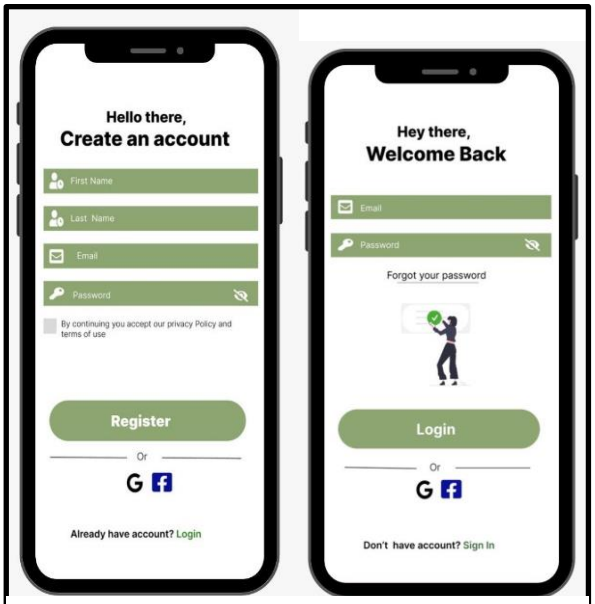

Fig. 10. Registration and Login UI

Fig. 10 represents the Register and Login modules, that are essential components of the system. These modules play a vital role in ensuring user access and security through the process of verification. In the Register Module, users are required to provide their first name, last name, email address, and password. This information is necessary for creating a user account. During the registration process, users must enter a valid and authentic email address. If an invalid email address is entered, the system will prompt the user to re-enter both their password and email for verification purposes. This step helps in preventing unauthorized access and ensures the accuracy of user data. This step serves as a privacy measure and is essential for verifying the user's identity. By requiring users to input their registered email and password, the system ensures that only authorized individuals can access the account and safeguards against unauthorized access. Both the Register and Login modules work together to establish a secure environment for users. By implementing these verification processes, the system maintains data integrity, protects user information, and enhances overall system security.

Welcome Page: The Welcome Page serves as the initial interface when users access the Life Assist application. It offers a positive and inspiring start to the day by displaying the day's quote: "Be the best version of yourself, spiritually, physically, and socially." This quote sets a motivating tone and encourages users to strive for personal growth in multiple dimensions. Additionally, the Welcome Page can be considered a lock page, providing a level of security and privacy for the user. Users also have the option to choose

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from a selection of quotes, allowing them to customize their experience and find inspiration that resonates with them.

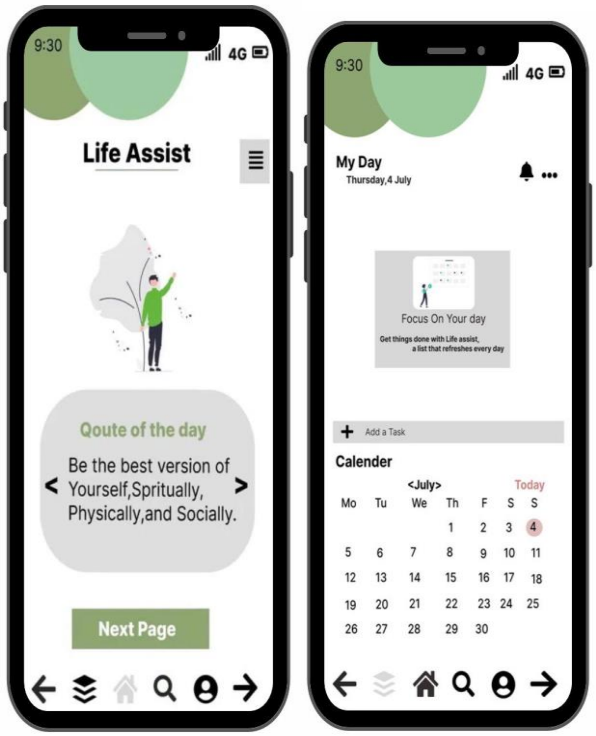

Fig. 11. Main page UI for the mobile app

Planner Module: The Planner Module is a fundamental component of the Life Assist application that assists users in managing their daily and weekly schedules. Users can customize their schedules according to their specific needs and preferences. The module consists of two sections: the planner and the calendar. The planner section enables users to input and organize tasks, appointments, and events for each day. It provides a clear and structured overview of the user's day, allowing them to plan and prioritize their activities effectively. Users can set reminders, allocate time slots, and mark completed tasks to stay on top of their commitments. Overall, the Planner Module empowers users to maintain better organization and productivity by tracking their day-to-day and weekly schedules. It serves as a reliable tool for users to stay on track, meet deadlines, and make the most of their time, ultimately helping them lead more organized and efficient lives.

In the two pages mentioned, users have the ability to set their activities and schedule them accordingly. These pages serve as an activity list, allowing users to input and organize their tasks, appointments, and events based on their preferences and priorities. The users can specify the time, duration, and other relevant details for each activity. The system actively monitors the user's schedule and tracks the progress of their activities. If a user fails to complete an activity within the designated time, the system will send a reminder or notification to inform the user that they are behind schedule. This serves as a gentle nudge to encourage the user to catch up with their planned activities and maintain productivity

Fig. 12. Activity Planner and Progress Monitor UI for mobile app

On the other hand, if the user successfully adheres to their schedule and completes their activities on time, the system will provide positive feedback. This feedback can be in the form of messages, badges, or rewards, acknowledging the user's diligence and commitment to their planned tasks. This positive reinforcement aims to motivate the user and reinforce their adherence to the schedule, fostering a sense of accomplishment and productivity. These two pages are interdependent, working together to create a seamless workflow. The activity list page allows users to organize and plan their tasks, while the feedback-giving page keeps them informed and motivated by providing reminders and positive reinforcement based on their adherence to the schedule. This combined functionality helps users stay on track, manage their time effectively, and maintain a productive routine.

2) Non-Functional Requirements

The Non-functional requirements of Life assist application includes system's Security, Performance, and Reliability.

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i. Reliability

The Life Assist application places a strong emphasis on reliability as a key requirement. Reliability refers to the ability of the system to consistently perform its intended functions without interruptions or failures. In the context of Life Assist, users rely on the application to effectively manage their schedules, track their activities, and receive timely reminders. By prioritizing reliability, the Life Assist application aims to provide users with a dependable and consistent experience. Users can confidently rely on the system to accurately store their schedules, send reminders, and assist them in managing their day-to-day activities effectively.

ii. Performance

The Life Assist application not only emphasizes reliability but also encompasses a strong performance functionality. Performance refers to the application's ability to deliver fast response times, efficient processing, and optimal utilization of system resources. In the context of Life Assist, performance plays a crucial role in providing users with a seamless and responsive experience. The application is designed and optimized to ensure quick loading times and smooth navigation, allowing users to efficiently access their schedules, input new activities, and interact with the system without delays or lags. By prioritizing performance, the Life Assist application aims to provide users with a smooth and efficient experience, allowing them to manage their schedules and activities seamlessly. The application's high-performance functionality enables users to navigate through the system effortlessly and accomplish their tasks with ease.

iii. Security

The login and sign-up pages of the Life Assist application incorporate robust user authentication mechanisms to ensure the security of user data and schedules. These authentication processes play a critical role in verifying the identity of users and safeguarding their sensitive information. When users register for an account, the sign-up page collects their required details, such as name, email address, and password. The application implements secure password storage techniques, such as encryption and hashing, to protect user passwords from unauthorized access. This ensures that even in the event of a security breach, user passwords remain securely stored and cannot be easily deciphered.

During the login process, the application verifies the authenticity of user credentials entered on the login page. This authentication step acts as a security checkpoint, ensuring that only authorized users can access their accounts and associated data. By validating the user's identity, the application prevents unauthorized access to user schedules and other personal information. The user authentication mechanisms implemented within the Life Assist application establish a secure environment for users to manage their data and schedules. These measures ensure that user data remains confidential and protected from unauthorized access, fostering trust and confidence in the application's security framework.

III Usability Evaluation

In trying to enact evaluation for this project, we opted to the use of cognitive walkthrough method due to some circumstances that preclude us to use the commonly used user-testing input gathering techniques. With going through the processes of cognitive walkthrough to understand how the researchers in this project understood the proposed system from the users' perspectives by predicting and simulating the thought processes of a user when engaged to our application.

A. Tasks

The researchers have arranged some set of available tasks to be completed using the lifestyle assistance smart mirror module application, these tasks include setting-up the daily activity planner, observing the points manager function and subfunctions to each activity, testing the notification message functions, correctly reviewing points calculated by the system, adding, and removing contacts, observing feedback based on points recorded, testing data integrity and correctness between smart mirror device application and the mobile application of the module.

B. Evaluation Procedure and Results

The authors have equally undertaken a structured procedure that allows us to overcome the setbacks to gather required data for evaluation. As mentioned above, there were several mediated tasks that we need to look into, in a setting similar to testing functionalities of programs modules, the authors who also acts as the impromptu observer/evaluator for this cognitive walkthrough evaluation process have well familiarized with the goals of each of those modules that is going to be perceived by the general user, and from that point the simulation of user execution of the program is done, or at the very least the modules that were able to be completed by the time this step is taking place.

After each of the functions has been observed and details of how they behaved are noted, the evaluation for those functions is then carried out. Information gathered from the evaluation is presented in the succeeding tables:

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TABLE II.
PLANNER MODULE TESTING

Test Case	*Test Steps*	*Test Data*	*Expected Result*	*Actual Result*
Check input function for planner	1. Activate system module 2. Input needed data into the input field	Activity details: Meeting Time: 10:10	Accepted and recorded	Achieved
Delete an activity	1. Choose an activity to be deleted 2. Click the 'x' button	One available activity on the recorded list	Activity record deleted	Achieved
Testing Auto-Activity Suggestion	1. Click the auto-add button	None	Shows sample workout or reminder of *Sunnah* activity at set time	Failed (only shows dummy data)

The activity planner module's expected result is very simple. It receives input from user in the form of details of an activity and the time it is expected to take place and then the accompanying points-assigning subfunction of the point-manager function allows each activity to be assigned a set number of point(s). As of the writing of this article, the observation resulted in minimum level of output that only consisted of recorded activity, time, and points. But the points assignment is still not correctly calibrated.

TABLE III.
POINT MANAGER MODULE AND FEEDBACK SUBFUNCTION TESTING.

Test Case	*Test Steps*	*Test Data*	*Expected Result*	*Actual Result*
Automatic point assignment	1. Create an activity to be recorded. 2. Observe the point detail	Sample Activity Details Random Time (09:00)	Show a random point assigned to a 'dummy' activity record	Achieved
Point counter function calculation observation	1. Create an activity record 2. Wait until the appointed time for the calculation module to be shown	Sample Activity Details Random Time (09:00)	Show total activity time	Achieved
Feedback presentation based on achieved points	1. Wait for the appointed time set in the system and observe the feedback message	None	Show a sample feedback message	Failed

It is also deemed that point manager functions, which covers almost everything related to the points system this entire application is based on, as something to be thoroughly checked. Users are expected to find the correct range of points, after calculations that has been mentioned on previous section, assigned to the activity that they input to the application' record list depending on the level of importance of each activity. It is found that the activity is still being assigned random points from 1 to 10 and is ignoring the rule for assigning the points that has been set beforehand. Another part that is observed is the feedback subfunction, which is a subset of the point manager functionality. This module revolves around majority of the main objectives of this project, in which it handles how the program can provide an appropriate feedback based on how many points that is gathered by the users by accomplishing their activities for a day, and with that user may do retrospection on how they conduct their daily activities.

TABLE IV.
NOTIFICATION MODULE TESTING

Test Case	*Test Steps*	*Test Data*	*Expected Result*	*Actual Result*
Show Sample message to check output	1. Activate the MagicMirror program for smart mirror and observe the supposed message notification	None	Correctly showing a sample notification message	Achieved
Motivational Quotes notification message check	1. Activate the Magic Mirror program for smart mirror and observe the supposed message notification	None	Correctly showing a sample motivational notification message	Achieved
Checking for activity reminder notification message	1. Activate the Magic Mirror program for smart mirror and observe the supposed message notification	None	Correctly showing a sample reminder notification message	Achieved
Checking the notification function for presenting health advice and Prophetic 'Sunnah' reminders	1. Activate the Magic Mirror program for smart mirror and observe the supposed message notification	None	Correctly showing a sample advice and/or reminder notification message	Achieved

The result that should be displayed on the Feedback subfunction still doesn't provide appropriate information for each range of total points. The output feedback still provides one general feedback, as it is currently set under dummy dataAs it was mentioned under the methodology, the notification function/module is generally handling all kinds of notifications the lifestyle assistance module application may send out. This function is evaluated by observing if it can give out the supposed messages of reminder of an upcoming activity. The test therefore is done by using dummy information of an activity and its supposed time to see if the reminder notification is actually being sent out, another subset of this function evaluation is to observe if the notification can give out supposed tips and reminders on health advices and suggestions on spiritual teachings that can be done to contribute to users' wellbeing. The resulting observations being done have shown that only the activity reminder module is being shown correctly and the needed specific time, while the health advice and reminders module has been set up but needs more adjustments.

C. *Data Analysis and Comments*

From the results received from the experimental walkthrough, there are still lots of work to do to improve the application based on the users' reviews on the promised functionality. There is the need to adjust correctly most of the application parts. There are still some components that are not providing the expected output. This is mostly suspected to be due to faulty synchronization between modules of the lifestyle assistance module.

Also, due to developmental setbacks that revolve around data synchronization and database management we couldn't simulate the functions created for the mobile application version of the proposed smart mirror module application. This preliminary result for the technicality report shall be updated in future updates in our endeavor to realizing a fully functional beneficial system.

IV. SDG Discussions

This work is an attempt to create a system, an IoT device, that can provide better quality of life through an alternative way of creating a structured lifestyle. The system was implemented through an application of Smart Mirror that allows people to arrange their daily activities, receive helpful suggestions, reminded of activities that revolves around the enhancement of physical, mental, and spiritual well-being, as well as a way to monitor progress of the activities by assigning points and providing feedback. The project is considered to promote one of the Sustainable Development Goals which is the ensuring of healthy lives and promote well-being for all ages (SDG 3) as well as SDG9 – Industry, Innovation & Infrastructure.

V. Conclusions

The focus of this study is the use of smart mirrors and IOT. Every morning, before leaving their homes, humans look in the mirror at least once to begin their day. The intelligent mirror system offers humans a comprehensive solution for effectively managing their activities to avoid time wastage. Day-to-day information can be accessed securely through the intelligent mirror. The smart mirror equally provides additional information such as the list of activities, the weather, time, date, calendar, daily plan, daily schedules with notifications, and point counts. The user will be able to monitor their progress daily and remain consistent as a result of this.

The team used a computing technology with the assistance of available resources to make significant modules to develop the smart mirror program to implement a mirror used for an enhanced and effective user experience. Ultimately, the project is still in the preliminary version stage and requires further enhancement to meet some of the system's requirements. We hope that perhaps the scholars concerned with artificial intelligence, monitoring devices, and IoT might very well benefit from the research. It also provides better insights into the implementation of successful works. Throughout the course of this project's development, research into how these things work was carried out. We came up with the concept of installing a Life Assist app that improves physical, spiritual, and mental health..The entertainment functions of this system make it possible for users to acquire a distinctive experience. Any device in the home environment can be applied and enabled through the IoT devices controlling the sub-system.

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Conflict of Interest

The authors declare that there is no conflict of interest

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