**DEVELOPMENT OF A MOBILE-BASE PERSONAL DIGITAL DIARY**

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**1.1 BACKGROUND OF THE STUDY**

People often need information while on the go. Sometimes the information required is essential to the task at hand, such as finding a hotel for the night. Other times, the need is associated with a question prompted by a conversation or a nearby object (e.g. a billboard). Based on the importance of the need and the amount of time available, people use a variety of strategies to obtain the desired information (Sohn et al., 2018).

Written diaries may not be appropriate for everyone and can exclude certain populations, including those with poor literacy and disabilities. During the past decades, for storing any information, there was large use of hard copy diaries. In a manual diary, there is difficult to search for any information it requires more effort and more time. Storing this information is a heavy task. It creates many security problems such as anyone can see the personal information of any other’s person (Bhosale et al., 2019).

Technological advances in recent years have meant that digital display media are becoming more “paper-like” and wireless. Lightweight digital displays are now more mobile and portable than ever. The quality and readability of the display screens are approaching the brightness, resolution, and contrast of plain paper. New techniques for stylus-based entry are making possible more paper-like interactions, such as allowing richer and more flexible mark-up and manipulation of digital documents (Manjunath et al., 2019).

Some of the most influential people in history kept detailed journals of their lives. The importance of diary writing cannot be over-emphasized. It can be said that diary writing harnesses the mental, creative, and emotional benefits of the diary author. It also helps the author keep some personal moments and other memorable important events. In the generation that we live in today, people don’t like to carry their traditional paper diaries along with them, this is simply because of their size. As such they are, they cannot record activities/events as they happen (Adeyanju et al., 2018).

**1.2 STATEMENT OF THE PROBLEM**

Diaries often contain both good and bad content. The ease at which Data/information is leaked out from a manual diary result in the blackmailing of the person(s) with the bad/negative content(s) in the diary. This is a big and mind-disturbing issue as an individual’s good reputation can be dented with negative content from his/her diary, denying him/her the good of tomorrow. Hence privacy and confidentiality have become a problem for handwritten or manual diaries. Thanks to technology, the negative issues of the manual diary have been addressed by digital diary.

**1.3 AIM AND OBJECTIVES**

**This project aims to design and implement a mobile-based digital diary.**

**OBJECTIVES**

**The objectives of this project are:**

1. **To design a mobile diary application.**
2. **To implement a mobile diary application.**
3. To evaluate the efficiency of the system with real data in order to determine its effectiveness in disseminating information accurately**.**

**2.1 LITERATURE REVIEW**

Article Title: Development of an Electronic Diary Application for Windows Smartphones

Authors: Ibrahim A. Adeyanju, Oluwaseun O. Alo and Adedoyin O. Aderibigbe. (2019)

**Summary of the work**

In this paper, a diary application designed for Windows Smartphone is presented. Developed using the C# programming language in Visual Studio 2014, the application offers users the ability to create, read, and edit diary entries. An evaluation involving twenty users assessed the software's user-friendliness, flexibility, and accessibility, with impressive results. The majority of users rated the application as excellent or very good in terms of friendliness (80%), flexibility in navigation (85%), and accessibility to previous diary entries (95%). Future work aims to replicate the application on different mobile platforms to widen its reach and accessibility.

**Methodology**

The research methodology involved the development of a mobile diary application for Windows Smartphone. This development was carried out using the C# programming language due to its capacity to share code across multiple platforms and create native user interfaces specific to each platform. This approach allowed the developers to focus on addressing business challenges rather than managing various programming languages. The research aimed to harness the capabilities of Windows Phone, a mobile operating system by Microsoft, known for its consumer-oriented focus and user interface derived from the "Modern" design language. The application's core functionality included enabling users to create, read, and edit diary entries, with an emphasis on user-friendliness and accessibility.

**Recommendation**

The paper recommends several areas for future work and improvements. Firstly, it suggests implementing the mobile diary application on other platforms such as Android and iOS to broaden its accessibility to a wider range of users. Secondly, the paper proposes the modification of the application into an online platform accessible from both mobile devices and standalone hardware, enhancing its versatility. Additionally, the paper recommends incorporating more features to make the diary application more dynamic and engaging, with a specific mention of the ability to save pictures as part of its expanded functionalities.

**Research Gap**

The research gap in this paper revolves around the need for further advancements and enhancements in the mobile diary application. While the paper acknowledges the potential for improvements and extensions, there exists a notable opportunity for in-depth exploration of innovative features and functionalities. These enhancements aim to make the diary application more appealing, versatile, and valuable to users on various platforms and devices, addressing evolving preferences and technological advancements.

Article Title: A Diary study of mobile information needs.

Authors: Sohn T, Kevin A. L, William G. G, and James D. H (2018).

**Summary of the work**

The paper explores the impact of mobile technology on people's information-seeking behaviors and interactions. It highlights the unique challenges posed by mobile contexts, including changing locations, limited time, and the need to multitask. Through a comprehensive two-week diary study, the research uncovers the diverse and creative methods individuals employ to fulfill their information needs in various situational contexts. The findings provide valuable insights into mobile information-seeking behaviors, offering design implications for improving mobile technology to better align with users' needs and preferences.

**Methodology**

In this study, the researcher aimed to capture in situ data from mobile users to understand their information needs and behaviors. they chose to use a diary study approach as it allowed participants to record information needs as they naturally occurred. Diary studies, while effective, have the drawback of potential data gaps due to participants forgetting to record entries or being selective in reporting. To manage this, they implemented strategies to mitigate the burden of maintaining a diary while still obtaining the desired level of detail about information needs and their situational context.

**Recommendation**

Based on my findings, there is a clear need for the development of mobile information systems that can better adapt to users' dynamic information needs and situational contexts. The high percentage of unaddressed or postponed information needs highlights the challenges users face in accessing information on the go. Therefore, recommend the exploration of context-aware mobile information systems that can anticipate and deliver information proactively based on users' context, preferences, and task sensitivity.

**Research Gap**

However, there is a notable research gap in understanding the reasons behind the postponement or non-addressing of information needs, even when mobile internet access is available.

Article Title: E-diary: a digital tool for strengthening accountability in agricultural extension.

Authors: Namyenya, A., Daum, T., Rwamigisa, P. B., Birner, R., Namyenya, A., Daum, T., Rwamigisa, P. B., & Birner, R. (2022)

**Summary of the work**

This study focuses on evaluating the effectiveness of smartphone applications in enhancing accountability within public agricultural extension services. The researchers developed and tested a smartphone app named 'e-diary' in Uganda, employing a Design Science Research approach. Data was collected through individual interviews and focus group discussions, with content analysis used for data analysis. The results suggest that smartphone apps have the potential to bolster accountability by enabling real-time remote supervision, thereby reducing supervision costs and time. However, successful implementation hinges on the provision of incentives like recognition awards. This study sheds light on the role of ICTs in improving the management of public services, particularly agricultural extension, in developing economies.

**Methodology**

The study employed the Design Science Research approach, conducted in collaboration between the University of Hohenheim, Germany, and the Ministry of Agriculture, Animal Industry, and Fisheries of Uganda (MAAIF). This approach follows a "build and evaluate" cycle, involving five stages.

**Recommendation**

The findings of this study underscore the potential of smartphone applications, like the 'e-diary,' in bolstering accountability within public agricultural extension services. To further enhance the impact of such applications, it is advisable to incorporate an automated mechanism that allows beneficiaries to verify and rate the quality of services received. Additionally, considering the challenges of limited access to electricity in rural areas of developing countries, the study suggests exploring solutions like the use of power banks or solar chargers to facilitate smartphone charging. Furthermore, incentivizing the use of these applications through recognition awards can encourage their successful implementation and adoption.

**Research Gap**

Future research should delve into the scalability challenges and the factors affecting the sustained use of these applications, especially in resource-constrained settings. Additionally, exploring the potential synergies between smartphone apps and other emerging technologies, such as blockchain, could open up new avenues for enhancing accountability in public services.

Article Title: Narrative Medicine: A Digital Diary in the Management of Bone and Soft Tissue Sarcoma Patients. Preliminary Results of a Multidisciplinary Pilot Study.

Authors: Cercato, M.C., Vari, S., Maggi, G., Faltyn, W., Onesti, C.E., Baldi, J., Scotto di Uccio, A., Terrenato, I., Molinaro, C., Scarinci, V., Servoli, F., Cenci, C., Biagini, R., & Ferraresi, V. (2022).

**Summary of the work**

This article discusses a pilot study conducted at the "Regina Elena" National Cancer Institute in Italy, focusing on the integration of "digital narrative diaries" (DNM) into the care pathway for patients with bone and limb soft tissue sarcomas. Adult patients utilized the diary during treatment or follow-up, guided by narrative prompts. The study assessed patients' and healthcare professionals' opinions regarding therapeutic alliance, awareness, coping ability, communication, relationships, and illness knowledge. Preliminary findings from seven patients and five healthcare professionals indicated that DNM improved patients' self-expression, perception of effective care, disease awareness, self-empowerment, as well as communication, relationships, and illness knowledge. These results highlight the potential for integrating patient narratives with clinical data and warrant further research in this area.

**Methodology**

This preliminary study, conducted with approval from the Ethical Committee of IRCCS Regina Elena in Rome, Italy, involved adult patients who provided written informed consent. These patients participated in the study by utilizing the digital narrative medicine (DNMLAB) platform, completing narrative diaries during their treatment or follow-up. The study aimed to evaluate patients' perspectives on therapeutic alliance, awareness, and coping ability, as well as healthcare professionals' opinions regarding communication, therapeutic alliance, and information collection. Data collection included both open and closed-ended questions, rated on a Likert scale ranging from 1 to 5, to assess these aspects.

**Recommendation**

the digital narrative diary has proven valuable in narrative-based medicine, offering ease of use for patients and suitability for clinical practice. To harness these benefits, further research should be conducted to design appropriate programs for implementing this approach more widely in healthcare.

**Research Gap**

Future research should investigate the specific mechanisms and best practices for integrating narrative-based medicine into healthcare processes. Moreover, exploring the applicability of this approach across different medical specialties and settings is necessary to establish a comprehensive framework for its implementation.

Article Title: Towards a Digital Sleep Diary Standard.

Authors: Schmitz, L., Sveinbjarnarson, B. F., Gunnarsson, G. N., Davíðsson, Ó. A., Davíðsson, þ. B., Arnardottir, E. S., Óskarsdóttir, M., & Islind, A. S. (2022).

**Summary of the work**

The study focuses on the development and evaluation of a digital sleep diary to address limitations in the traditional pen-and-paper Consensus Sleep Diary (CSD). Over 12 months and with 109 participants, the researchers used an iterative approach and Action Design Research methodology to create a user-friendly digital sleep diary. Results indicate that participants found the digital format engaging, accessible, and easier to comply with compared to the paper version.

**Methodology**

The study employed an iterative development approach to create a digital sleep diary based on the extended Consensus Sleep Diary (CSD) version, aiming to address compliance and memory bias issues compared to the pen-and-paper CSD. The research spanned 12 months with 109 participants and followed the Action Design Research methodology. Multiple prototype variations were assessed against both the pen-and-paper CSD and independently. Validation methods included user experience and usability tests, semi-structured interviews, and application analytics.

**Recommendation**

Based on the findings of this study, we recommend the adoption of a digital sleep diary as a more effective and user-friendly alternative to the traditional pen-and-paper format. The digital sleep diary not only enhances participant engagement but also improves compliance through features such as notification reminders and personalized content.

**Research Gap**

This study underscores the advantages of digital sleep diaries but underscores several critical research gaps. further research is necessary to address critical factors such as data security, seamless integration with electronic health records, and the healthcare providers' role in effectively utilizing digital sleep diaries.

**3.1 METHODOLOGY**

The research approach is a rigorous investigation like this to uncover new facts or information about the existing system. This study’s research employed the primary and secondary source of data collection.

**Primary Source of Information**

This comprises information that is collected directly or indirectly from target users without any alterations or ideas from other authors. The information from this primary source is deemed more accurate and reliable. Hence, the aim is to assimilate the information gathered from this source into the project in order to meet requirements. The chosen fact-finding techniques for the primary source data gathering are: interview and observation

**Secondary Source of Information**

This basically comprises the totality of information someone is able to obtain from existing sources such as books, the internet, case study, articles, newsletter, and other valuable publications. The resources gathered from the internet specifically have been very relevant, various search engines especially Google made information finding very easy.

**3.4 CHOICE OF PROGRAMMING LANGUAGE**

The proposed design will be implemented using flutter for its user interface (frontend) while Python will be used for the backend programming, Sqlite3 will be used for its database due to its portability, and Django REST Framework will be employed for its REST-full APIs, the combination of the above modern technology forms the technology for this research work.

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