

Enhancing Library Engagement: Designing a Mobile Application for Dr. GRD Memorial Library Using Jotform and Chatbase

J. Arumugam¹, M. Keerthna² and S. Nisha³

¹Librarian, ^{2&3}Library Intern,

^{1,2&3}PSG College of Technology, Coimbatore, Tamil Nadu, India

E-mail: jam.lib@psgtech.ac.in, keerthnamahalingam2000@gmail.com, nishasiva2112@gmail.com

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Abstract - Mobile applications are software applications developed for small and wireless computing devices such as smartphones and tablets, rather than desktops or laptops. With advancements in networking technologies, mobile applications are increasingly utilized in the field of education, particularly in libraries, to engage more users. They are predominantly preferred for providing library services such as accessing e-resources like e-books, e-journals, e-newspapers, e-patents, etc. Additionally, these applications provide users with access at any time, from anywhere, and help save time. This paper briefly explains the design of a mobile application for Dr. GRD Memorial Library, the main library of PSG College of Technology, using Jotform, a free, no-code app builder that allows sharing multiple forms, links, and other elements in a single app that works on any device. To enhance interactivity, a chatbot is also incorporated using an AI chatbot builder, Chatbase, primarily utilized for adding chat widgets in mobile applications.

Keywords: Mobile Application, Mobile Library, Jotform, Chatbot, Chatbase

I. INTRODUCTION

Due to significant advancements in ICT, information technology is playing a critical role in academic libraries. Most of the Academic libraries are looking for mobile applications to provide their services and resources. Mobile applications, often simply referred to as “apps,” have become an integral part of our daily lives, revolutionizing the way we communicate, work, play, shop, and access information. These software programs are designed to run on mobile devices such as smartphones and tablets. In the library mobile applications, users can access the library information through their electronic gadgets. Mobile apps are increasingly focusing on providing personalized experiences by tailoring content and features to user preferences and behavior (Syahidul Haq, M., 2022). According to the fourth law of library science “Save the time of the users” by S.R. Ranganathan, mobile apps help the user to save their time.

Libraries currently offer digital resources such as e-books, e-journals, and online databases, allowing users to access vast information from any location with an internet connection. Libraries can provide mobile apps that allow users to borrow and read e-books, audiobooks, and digital

content directly from their mobile devices. Many libraries have created mobile apps and implemented responsive design for their websites, allowing users to easily access library services and resources from a variety of devices (Becker, D. A., 2020). The development of a mobile app for the library using the app builder tool, Jotform.

A. About PSG College of Technology Library

PSG College of Technology is a Govt. Aided, Autonomous, Affiliated with Anna University and an ISO 9001:2025 certified institution. It was established as PSG Industrial Institute in 1926 by PSG and Sons Charities in Peelamedu, Coimbatore. The engineering college was started on the institute campus in 1951 by G. R. Damodaran, who became its first principal. The college library was named after the inaugural principal of the college, the Dr. GRD Memorial Library has over 260,000 books, 13,000 CDs/DVDs, and 217 printed journals and 1078 E-Journals to cater to students, research scholars, and faculty members. There is an exclusive digital library with 60 computers connected to high-speed internet. The library subscribed more than 15 databases. They also provide various services like Article Request, Values Added Services, Reference & Referral Services, Patent Search Service, E-Alerts, NDLI Membership, Book Bank Services, Book Recommendation, and Feedback Service. The mobile app users of Dr. GRD Memorial Library can utilize these services via the app created by Jotform.

B. Need of Mobile Apps

Libraries today recognize the importance of having mobile apps to make it easier for people to access and use their services (Chiu, P.-S., 2014). Mobile apps allow users to explore library resources, like e-books and catalogs, directly from their phones. These apps also send timely notifications and help users connect with various library services effortlessly. By embracing mobile apps, libraries adapt to the preferences of users who are accustomed to using smartphones, making it simpler and more convenient for everyone to engage with the library's offerings (Tingting Zhu, 2014). During pandemics and natural disasters, libraries and librarians face numerous obstacles in

continuing to operate and provide services. Even while users can now visit libraries remotely, it doesn't mean they will always remember that they have access to librarians and other library resources (Malathy, S., 2013). In order to guarantee that users of their libraries utilize them when they are most in need, it is the responsibility of librarians to market and innovate their offerings (Danielle A. Becker, 2020).

C. Importance of Mobile Apps

Implementing a mobile app in libraries involves a comprehensive process aimed at enhancing user experiences, accessibility, and the overall efficiency of library services. Typically, the implementation begins with a thorough assessment of the library's goals and user needs (Ajab Mohideen, 2022). The chosen mobile app platform, whether it's developed in-house or through a third-party solution like Jotform, should align with these objectives. During the development phase, key features such as catalog search, account management, and any other custom functionalities are integrated to meet the specific requirements of the library and its users. The user interface is designed to be intuitive, ensuring ease of navigation and a positive user experience (Jung, J., 2011).

Integration with existing library systems, databases, and resources is a critical aspect to ensure seamless access to digital collections and services. Especially in college libraries, mobile apps play a significant role in simplifying access to resources and services for students as well as faculty members. These apps make it convenient for users to search for books, articles, and other materials using their smartphones, and with the incorporation of a chatbot, the users are allowed to chat with the librarian at any time anywhere for clarifications.

D. Jotform

Jotform is a no-code app builder, available free, letting users add forms, widgets, products, and branding to one fully customized app that can be downloaded onto any smartphone, tablet, or computer. It is a simple form and app builder, using the drag-and-drop option. Jotform is optimized for mobile devices, meaning users accessing the apps on smartphones or tablets will easily utilize them.

It provides various template categories based on the user usage namely form, app, table, PDF, card form, store builder, approval, and sign templates, user can select any one of the following template categories. Each template category has a maximum number of templates, select one of them and click on the "Use Template" option. In the Jotform mobile app, there are many elements like text, images, gallery, heading, paragraph, link, document, table, etc. Users can connect their forms or apps to Google Drive, Dropbox, Mail chimp, and other third-party applications and services by using JotForm's integrations. Additionally, we have created the chatbot using Chatbase AI.

E. Salient Features of Jotform

1. Drag-and-drop app builder
2. Powerful app elements
3. Flexible app designer
4. Ready-to-use layouts
5. Apps from a single form
6. Powerful online forms
7. E-sign documents
8. Payments on any device
9. Data management with Jotform Tables
10. Multipage apps
11. Advanced sharing & publishing options
12. Custom URLs
13. Apps for mobile & desktop
14. Embeddable on any website
15. Custom splash screen & app icon

F. Chatbase

Users may add a chat widget to their website using Chatbase, an AI chatbot builder. Any user can acquire a chatbot that can respond to any questions regarding the content of their website by just uploading a document or adding a link. It asks the user to add questions and answers about the website or services that they provide. Chatbase is notable for its easy-to-use interface and quick response times. Through the platform, users can gather user feedback to better understand their experiences and make improvements to the chatbot. Conversation flow analysis allows users to spot trends, bottlenecks, and areas where the chatbot's dialogue needs to be improved. It provides a chatbot in a free and subscription manner. It also gives the Chat Logs to get the usage of the chatbot that will help the user to add content to the bot. Chatbase is incorporated into the Jotform mobile app by providing the URL of the chatbot.

G. Salient Features of Chatbase

1. Integration with External Systems
2. Natural Language Processing (NLP)
3. User Authentication and Personalization
4. Conversation Flow Design
5. Analytics and Reporting
6. Live Chat Integration
7. Security Features

II. REVIEW OF LITERATURE

Mobile apps are created as small size software for the devices called smartphones, smartwatches, tablet and other wearable devices (Lupton, D., 2020). The process of developing a mobile application for an academic library involves finding pertinent services, cutting expenses, and assessing usability. In order to flourish, libraries need to adopt new technologies, and mobile technology is one important area to focus on for better and quicker services (Kurkovsky, S., 2012). Academic libraries frequently use

mobile apps for search, ask a librarian, databases, renewal, circulation, and library hours, whereas public libraries typically use search and barcode scanners (Mansouri, A., 2019). Due to their increasing integration into daily life, mobile phones are altering the way people connect words (Dr. R. K. Kushwaha, 2022). Libraries should explore via mobile devices to establish connections with their users (Barile, L., 2011). The importance of library mobile apps emphasizes improved service, allowing users to connect with relevant organizations from anywhere and access library resources. It discusses the content, nature of resources, and web connections available through these apps (Guo, Y. J., 2018).

M-libraries provide the advantage of maximizing the use of library information sources and allowing more users to access larger collections. But they also need regular upkeep as well as improvements to privacy and security. (Dinazzah, A. R., 2022). While aiming to design, develop, implement, and evaluate a mobile application for academic library services, a four-stage process was used, including literature review, user interface design, evaluation and programming, if needed. The researchers found this approach economical and effective in a developing country. (Saeidnia, H. R., 2023).

Mobile library services used by university libraries efficiently mobilize their services, highlighting the frequent use of mobile devices by college students. It highlights the importance of services in facilitating information mobilization regardless of space or time (Margam, M., 2017). Even though the majority of academic libraries at research universities have a mobile presence, the selection and quality of services vary greatly. Numerous respected university libraries continue to lack a mobile presence. (Bomhold, C., 2014).

Students mainly wanted to utilize library applications to access basic services or information like book renewal, library hours, and catalog searches. The majority of possible obstacles to students using the library apps included inadequate internet access. A few of the main issues with implementing library apps were the possible expense, knowledge, training, and support from administrators. (Al-Daihani, S. M., 2018). Also, students recommended mobile reference support, and a mobile app that helped them to access library resources more efficiently, and mobile access to the libraries' digital collection as ways to enhance their library experiences. (Mullins, K., 2017).

Across the world, mobile applications are utilized to improve library services and collections. (Singh, B. P., 2023). Since 77% of US adults own and use a smartphone, libraries can offer resources and services through mobile access. The optimization of library mobile sites, the acquisition of mobile-ready collections, the assessment of application content, and the training of information professionals in these tasks are critical practices (Saragossi, J., Costello, L., 2018).

The mobile application interface's simplicity provides some advantages over a conventional library web site (Miller, R. E., 2013). There is a noticeable social impact associated with using mobile phones to access library services and resources. Many library services are accessed by smartphone, and reports have been made about the advantages and disadvantages of this usage. The majority of the reviewed studies received high-quality ratings (Safdar, M., 2023). A survey among 250 university library staff revealed that catalog and research databases were the most frequently used resources. Still, usability issues hindered access to other services, impacting library administrators' decisions on app selection and e-collections (Caniano, W. T., & Catalano, A., 2014). These studies collectively underscore the transformative role of mobile applications in libraries, enhancing accessibility and user engagement.

III. OBJECTIVES OF THE STUDY

1. To create a mobile application for Dr. GRD Memorial Library of PSG College of Technology using Jotform.
2. To make it simple and accessible for students, researchers, faculty members, and other working staff to access academic library e-resources on their mobile devices.
3. To know about the library collections, services, and various other facilities offered by the library and to learn more about research assistance provided by the library.
4. To design a user-friendly interface, enhancing easy accessibility to users of various technical backgrounds.
5. To incorporate the "Ask the Librarian" chatbot using Chatbase.
6. To know about the salient features of Jotform and Chatbase

IV. METHODOLOGY

Step 1: Collected various collections already existing in the library, for example: books, journals, newspapers, etc.

Step 2: Collected open-access e-resources and also gathered information regarding the services provided by the library.

Step 3: Created the Mobile Application for Dr. GRD Memorial Library, and added all the collections and resources into the mobile app.

Step 4: Incorporated "Ask the Librarian" chatbot into the mobile application using Chatbase, an AI chatbot builder.

V. CREATION OF A MOBILE APPLICATION

Jotform is used to create the mobile application, the keyword "Jotform Apps" is given in any of the search engines to fetch the appropriate results. Among the search results fetched, any user can click on this link <https://www.jotform.com/> to open the jotform apps. Then on the home page of the Jotform apps, click on the "Get started" button to start the creation of mobile applications by signing up with an authenticated Mail ID and password.

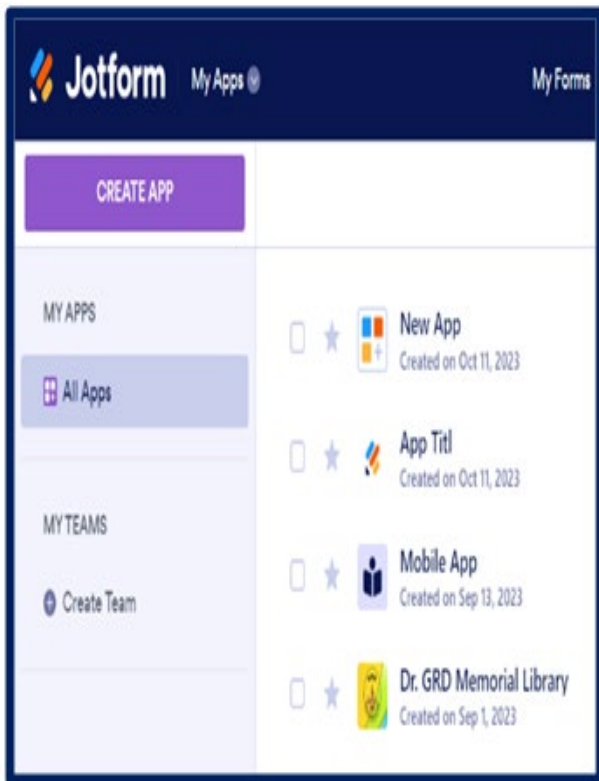


Fig.1 Create app option

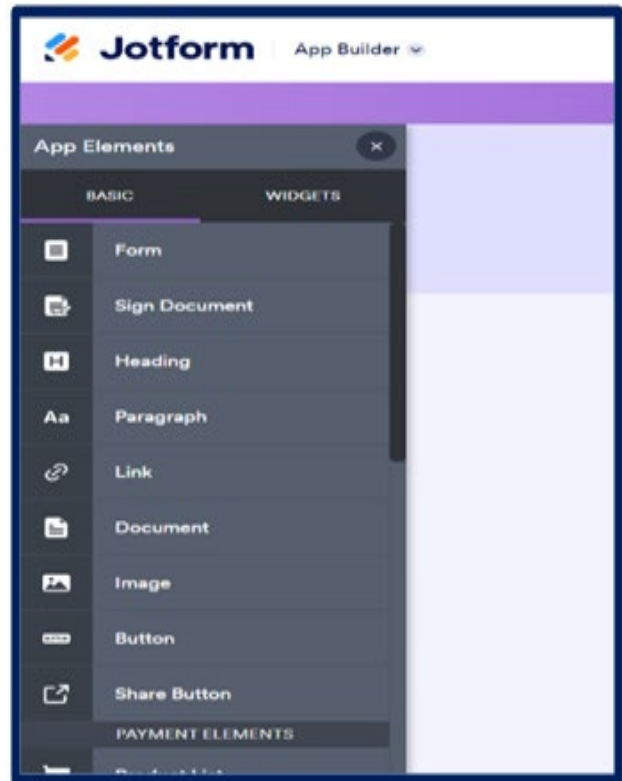


Fig.3 To add various elements

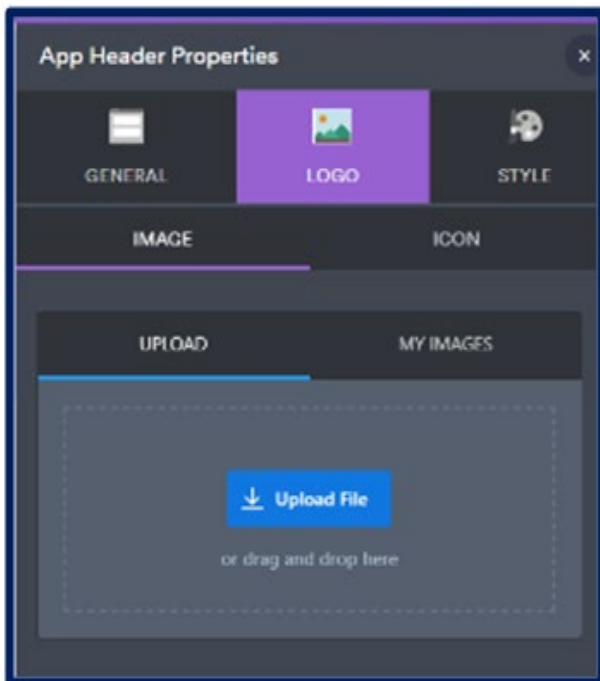


Fig.2 App title and logo edit options

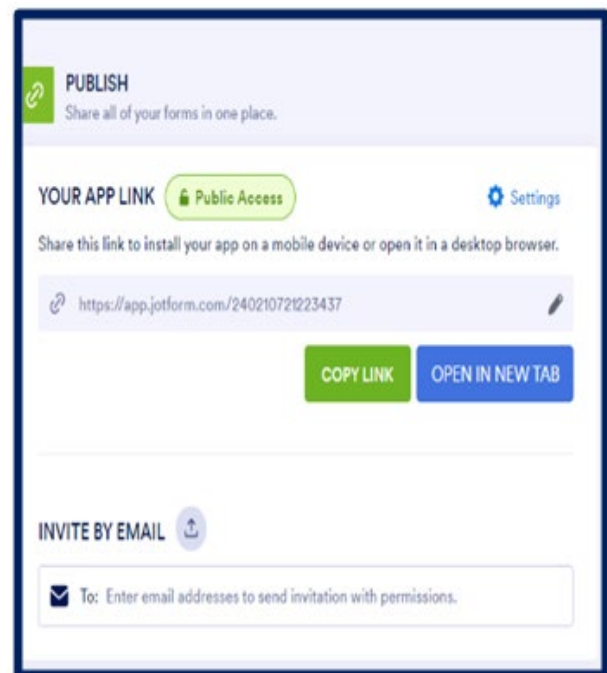


Fig. 4 Publish option

Click on the “Create app” button (Fig.1) and then the user can pick any one of the theme options available there, namely, “Start from scratch”, “Use template”, “Clone existing app” and “Built store”. The dashboard of the app allows the creation, editing, and modification of the mobile application content and structure of the apps. Also, the user can change the app title and logo of their mobile applications (Fig.2).

Fig.3 shows the various elements that can be added to the mobile application. There are many elements like Forms, Heading, Paragraph, Link, Document, Image, Share button, Image gallery, Videos, Map, Table, and so on. These elements can be added to the mobile app and also can be edited, and the content can also be modified as per the user’s wish in case of changing the text color and alignment options. The user can publish their mobile application by

clicking on the “Publish” option (Fig.4). Sharing options are also available under this menu, for example, a QR Code for the app can be generated and downloaded, which can be displayed in the library, so that the user can scan the QR code to download the app.

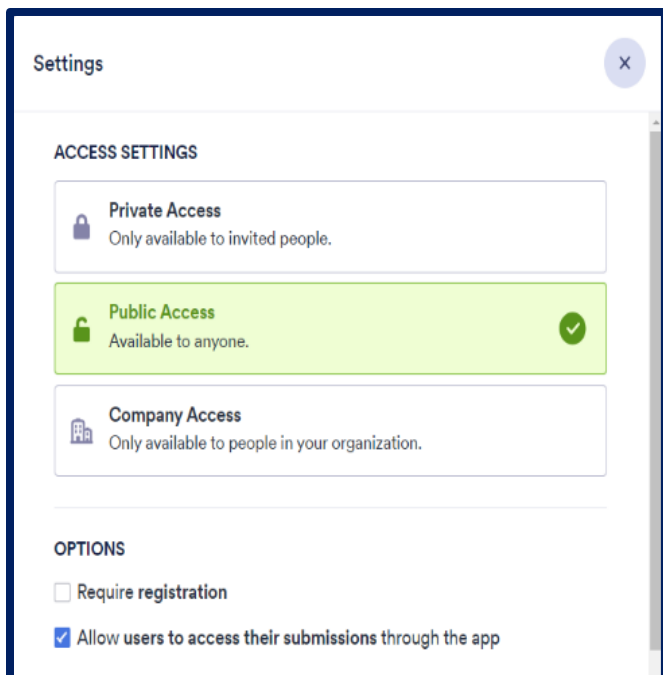


Fig. 5 Access Settings

By clicking on the “Settings” options in the “Publish” menu, the user is directed to “Access settings”, where the user is allowed to select who can access the mobile app created by them by choosing any of the access options such as “Private Access”, “Public Access” and “Company Access” (Fig.5). Then clicking on the “Preview app” option allows the user to view the output of the mobile application that they have created using Jotform (Fig. 6).

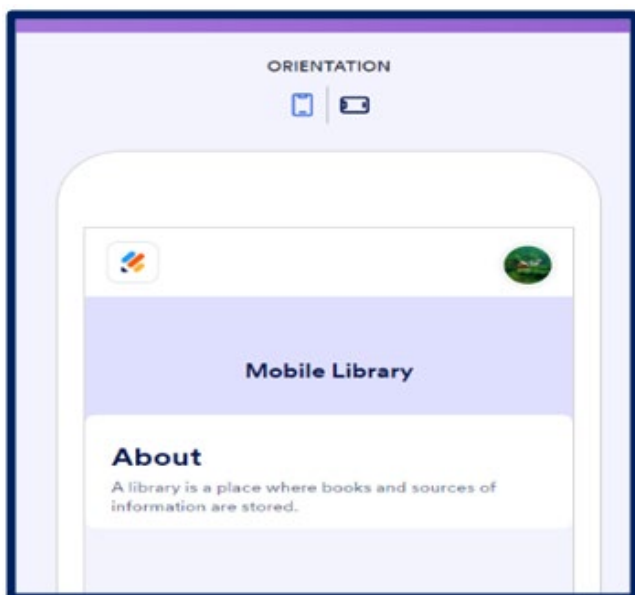


Fig. 6 Preview option to view the mobile app outlook

VI. IMPLEMENTATION OF MOBILE APPLICATION IN DR. GRD MEMORIAL LIBRARY

Fig.7 shows the Home screen of the mobile app created for Dr. GRD Memorial Library using Jotform. Once the user opens the application by searching the URL in the browser, the app provides the user with the “Add to Home Screen” option, and by clicking that option the mobile application will install automatically. This mobile app has various Menus like, About Us, Collections, E-Resources, Services, and Ask your Librarian (Fig.8). Open Access E-Resources such as e-books, e-journals, e-databases, and e-patents are added to this mobile application, which was developed for Dr. GRD Memorial Library (Fig. 9).

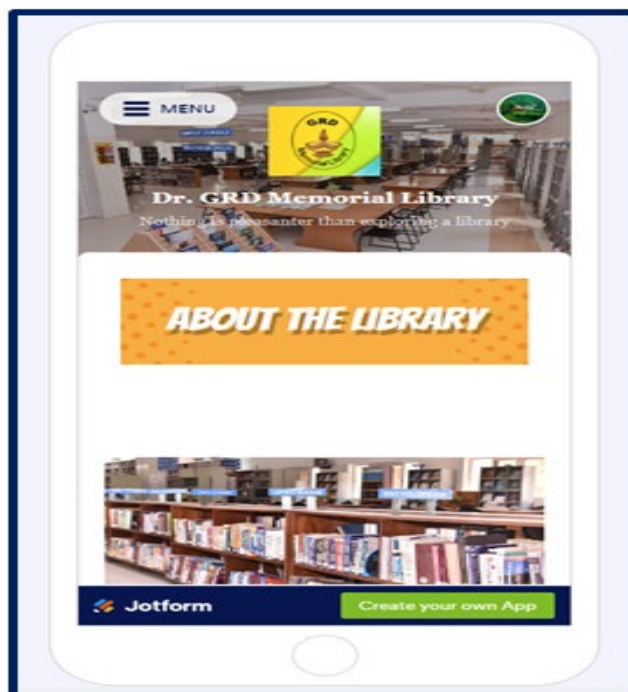


Fig. 7 Home page of Mobile app



Fig. 8 Menus added in the app

Various services provided by Dr. GRD Memorial Library are listed here in this mobile app, namely, Article Requests, Value Added Services, Reference and Referral Services, Patent Search Services, E-Alerts, NDLI Membership, Book Bank Service, Book Recommendation and Feedback Services (Fig.10).

In this mobile application, the “Ask your librarian” chatbot is incorporated using Chatbase (Fig.11). By using this option, any user can ask their query about the library and its services and facilities to the librarian, so that the user will be guided according to their query (Fig.12).

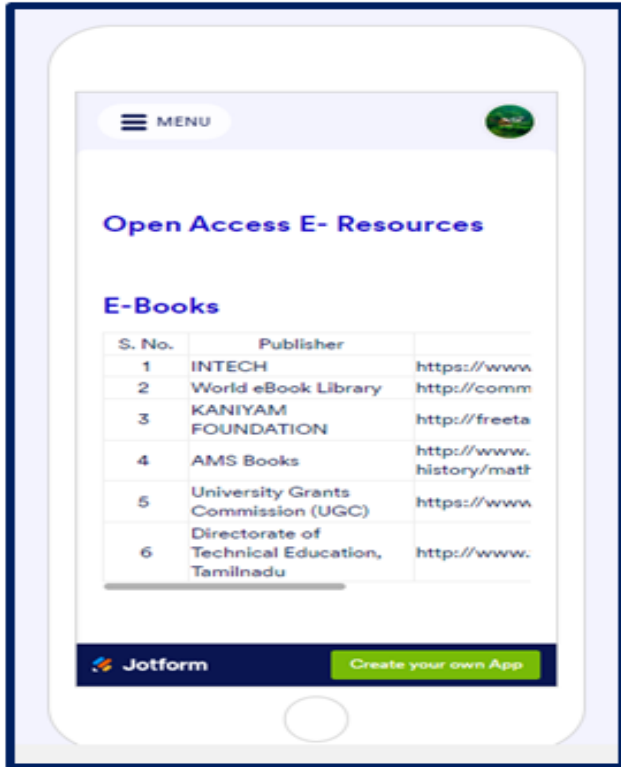


Fig. 9 List of E-book publishers

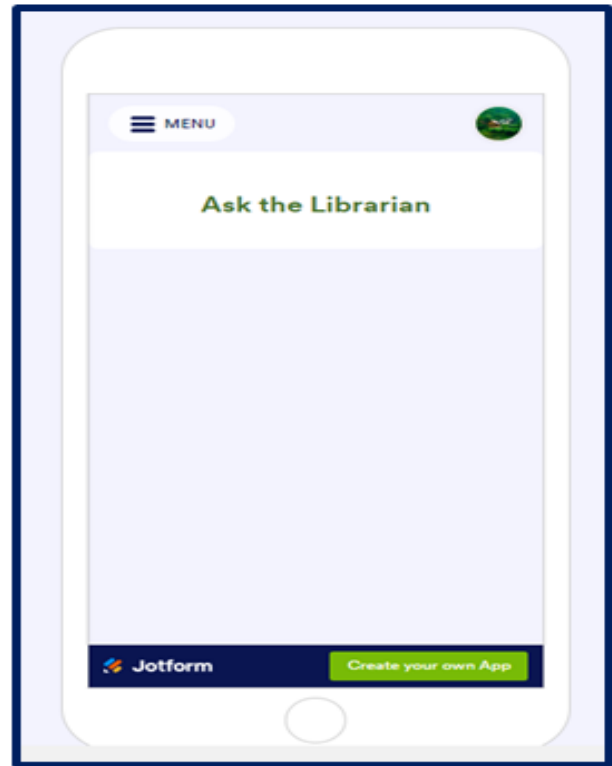


Fig. 11 “Ask the Librarian” menu

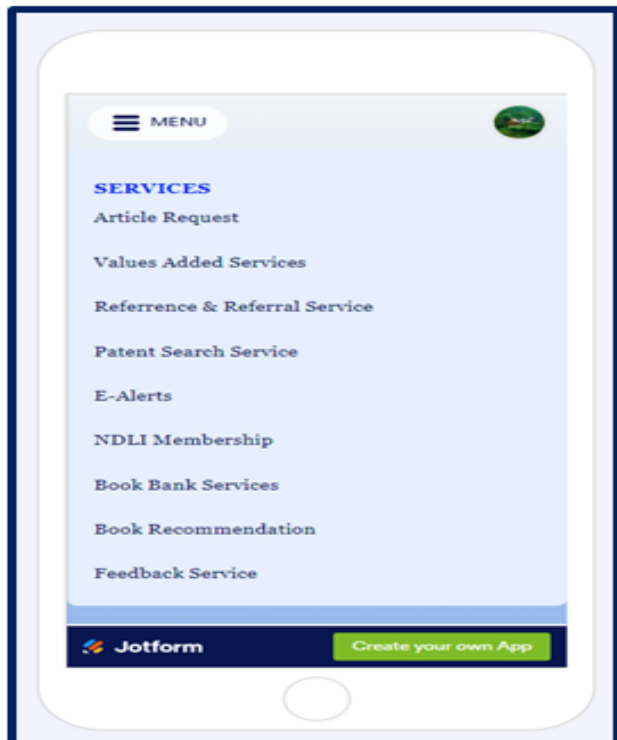


Fig.10 Services provided by the library

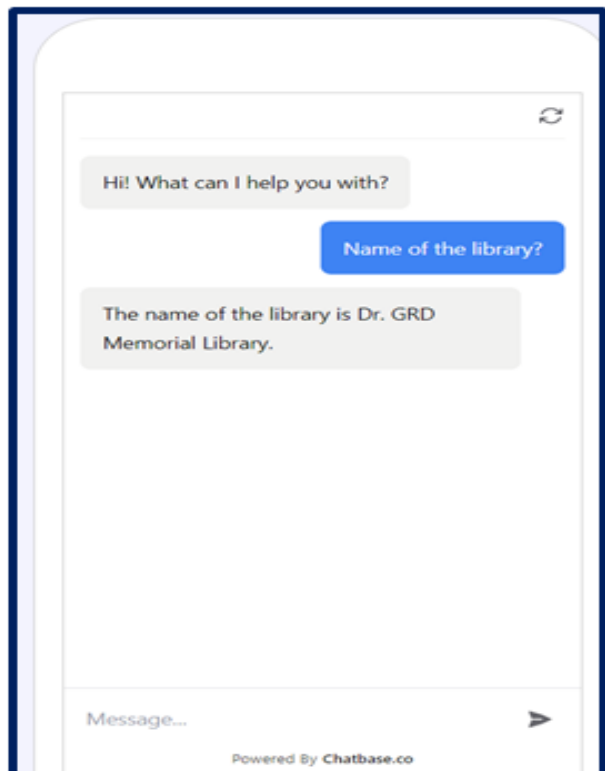


Fig. 12 Chat interface with the Librarian

VII. MOBILE APPLICATION URL AND QR CODE

<https://app.jotform.com/grdlibrary/app>

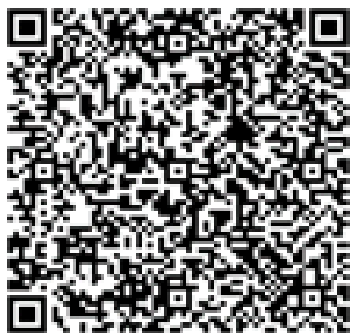


Fig. 13 Scan me to install mobile apps

VIII. IMPACT OF MOBILE APPLICATIONS IN ACADEMIC LIBRARY

The integration of mobile applications in libraries has significantly impacted service delivery and user experience. The use of mobile library applications (m-library apps) is on the rise, with a focus on spontaneous improvement (Dinazzah, 2022). Mobile applications always have a transformative impact on academic libraries. These libraries aim to provide 24/7 access to a variety of digital resources, from e-books to academic publications. These apps simplify the process of finding relevant materials within the palm of

the user. The users can borrow, renew, and return library materials via the mobile app, reducing overdue fines. Also, the status of the books can be checked in the Web OPAC, before visiting the library, so that the time of the user can be saved. Interlibrary loan requests can also be made for broadening resource access.

On the other hand, users stay informed with the implementation of mobile apps, so that library notifications can reach users irrespective of the place and time. This plays a major role in actively engaging users at all events conducted at the library. Mobile apps break the communication barrier between users and the library staff, leading to improved services. The creation of these mobile app impacts the user to view the library services through their smartphones without going to the library or library website.

The importance of mobile technology is emphasized in libraries, highlighting the introduction of phones and QR codes, and discussing the potential for new services. (Kumar, 2013). For these mobile applications in academic libraries, data security and privacy are of the highest priority. Integrating a chatbot into a mobile app is very useful to know about the user expectations through the chat logs. On the whole, mobile apps generally enhance the usability, effectiveness, and easy accessibility of academic libraries.

IX. PROS AND CONS

Pros and Cons	Jotform	Chatbase
Pros	<ol style="list-style-type: none"> 1. User-friendly Interface 2. Integration with Other Tools 3. Ease of Data Collection and Management 	<ol style="list-style-type: none"> 1. Ease of Development 2. Natural Language Processing 3. Analytics and Insights
Cons	<ol style="list-style-type: none"> 1. Limited Customization and Integration Option 2. Limited Design 3. Limited options for pictures displayed in app 	<ol style="list-style-type: none"> 1. Limited Customization 2. Security and Privacy Concerns 3. Limited Integration Options

X. CONCLUSION

The mobile application for Dr. GRD Memorial Library at PSG College of Technology has successfully achieved its goals step by step. Firstly, by utilizing Jotform, the app boasts salient features such as a user-friendly interface, enabling easy access to academic library e-resources for students, researchers, faculty members, and staff. Users can explore the library collections, avail various services, and learn about facilities offered by the library. Additionally, the app ensures accessibility for individuals with diverse technical backgrounds. Furthermore, the incorporation of the “Ask the Librarian” chatbot using Chatbase enhances the user experience by providing quick and efficient research assistance. The comprehensive success of this mobile application makes it a valuable tool for the library community, offering a streamlined and user-friendly

platform for accessing resources and interacting with library services.

In summary, creating an open-source mobile application for productive academic library services is a significant step in improving the usability and accessibility of learning materials. This initiative promotes inclusivity, convenience, and efficiency for students, faculty members, and researchers. Most library users prefer smart devices like mobile phones and tablets. Thus, the creation of mobile applications is more effective for mobile library users. Additionally, this application provides access to users at anytime and anywhere, eliminating the need to physically visit the library (Obinyan, O. O., 2020). The implementation of a chatbot also facilitates easy interaction with the librarian. Therefore, the creation of mobile applications in the field of libraries provides a more useful and effective interface between the library and its users.

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