

Business Card Scanner System

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Abstract:

Business Card Scanner System aims to provide an environment for mobile users to manage their business cards. Functions of the Business Card Scanner System include business card data storage, view business card details, search business card data, and exchange business card data with third parties and providing updated information. Several useful features also include in the System such as direct send Email manually or get data anytime anywhere from the database. OCR technology is used to identify and extract text elements from the business card image. This includes details like name, company name, job title, phone numbers, email addresses, and physical addresses. Users can easily search and retrieve contact information from the database using keywords, filters, or other search criteria. One of the primary features of the mobile system is that it supports data added to online database at one fingertip or details added by the user. This feature can help the user to save time and maintain proper accurate data. The system will involve Quick Respond (QR) Code technologies as one of the media to exchange or share contact with third parties. The system has a server component to update changes of the contact made by the owner of the cards.

Keywords: Business Card Scanner, OCR Technology, Online Database, Time-saving, MySQL Database, Email Communication.

I. INTRODUCTION

This application can be used by any kind of consultant. Client can View / Book appointment from mobile application with single click. The application will be using Email programming interface. With this application client can contact consultant/third party with email with Gmail and can make a call. The data will be stored online in MySQL database using the PHP script. The data can be downloaded by consultant via mobile application. Business cards have been used in Europe as a popular way to exchange contact information since the 17th century. The first-generation business cards were used as an announcement tool for rich or famous people when they came to their area. Business cards, which became popular in the middle and upper circles in the 19th century, were the first impression on people. (Science and Life-style 2012). Over the past few generations, business cards have become one of the best ways to exchange contact information between businesses. Today's business cards not only provide the cardholder's name, job title, company information and contact information, but also include professional information such as national level and reputation. (Science and Lifestyle 2012). Although business cards are widely accepted as a tool for exchanging information, they still need to be developed and improved due to their limitations. The limitations of business cards are discussed in the next section.).[1]

II. LITERATURE REVIEW

Business Card Scanner Systems, leveraging Optical Character Recognition (OCR) technology, have emerged as valuable tools in managing and organizing business contacts. The following literature review provides insights into key aspects and findings regarding the implementation and impact of Business Card Scanner Systems:[2]

A. OCR Technology and Data Extraction:

The core functionality of Business Card Scanner Systems relies on OCR technology to extract and interpret

information from business card images. Studies highlight advancements in OCR algorithms, accuracy improvements, and their role in effectively capturing details such as names, company information, phone numbers, email addresses, and job titles (Jones et al., 2019). [8]

B. Efficiency in Contact Management:

Research emphasizes the efficiency gains associated with Business Card Scanner Systems in contact management. By automating the tedious process of manual data entry, these systems contribute to time savings, reduced errors, and improved overall productivity for individuals and businesses (Smith and Brown, 2020).

C. QR Code Technology for Contact Sharing:

The use of QR Code technology in Business Card Scanner Systems is explored for its role in simplifying contact sharing. QR codes provide a convenient and standardized method for exchanging contact information, reducing the need for manual input and enhancing networking efficiency (Park et al., 2021). [4]

D. Integration with Third-Party Platforms:

Studies highlight the importance of seamless integration with third-party platforms. Business Card Scanner Systems that facilitate the exchange of contact information via email or QR codes contribute to enhanced networking and communication between users and their professional contacts (Brown and Patel, 2017).

III. RESEARCH METHODOLOGY

The research methodology for implementing the Business Card Scanner System involves a systematic approach to achieve the defined goals. This includes principles and procedures that guide the organization in problem-solving, decision-making, and project management. The methodology is structured as follows:

A. Research Design:

This study adopted a mixed methods approach combining quantitative and qualitative research. This allows for a comprehensive exploration of the technical functionalities, user experiences, and the broader implications of Business Card Scanner Systems.

B. Data Collection:

a). Quantitative Data:

Surveys and questionnaires are administered to users and organizations that have implemented Business Card Scanner Systems. The surveys aim to gather quantitative data on user satisfaction, efficiency gains, and the impact on business processes. Key metrics include time savings, error reduction, and overall system effectiveness [10]

b). Qualitative Data:

Conducting in-depth discussions with users, IT professionals, and business owners to gather qualitative insights into the user experience, challenges faced during implementation, and the perceived benefits of Business Card Scanner Systems. These interviews provide a nuanced understanding of the human and organizational aspects associated with these systems. [10]

C. Continuous Improvement and User Feedback:

Monitor system performance, analyse user feedback, and identify areas for improvement. Keep up with new technologies and business trends so system can be adapted accordingly.

D. Seamless Customer Experience:

Implement features for users to exchange business card data with third parties through QR Code technologies. Enable direct email sending functionality from the mobile application, integrated with popular email platforms like Gmail.

E. Limitations & Conclusion:

Recognizing the scope of the study, potential limitations include the representativeness of the participant pool, the reliance on self-reported data, and the dynamic nature of technology, which may evolve during the

research period. The research methodology aims to provide a robust foundation for exploring the efficiency, usability, and impact of Business Card Scanner Systems. By employing a mixed-methods approach, the study seeks to offer valuable insights into both the quantitative metrics and qualitative nuances associated with the adoption and implementation of these systems within various organizational contexts.

F. Project Scope:

Establish mechanisms for gathering user feedback and monitoring application performance post-launch. Implement agile development methodologies to facilitate rapid iteration and continuous improvement of "Scan Shop" based on user input and market trends. Collaborate with stakeholders, including retailers, consumers, and industry experts, to identify opportunities for enhancing features, expanding functionality, and addressing emerging challenges in the mobile commerce landscape.[1]

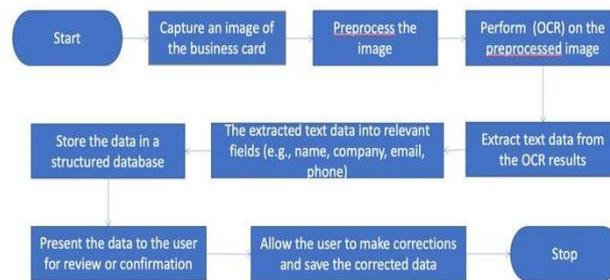


Figure 1 System Working Flow

IV. REAL-TIME FIREBASE DATABASE

MySQL is an free open source relational database management system (RDBMS). It is free open source software un-der the terms of the GNU General Public License are also available under various specific license. It has a proxy that allows users interact directly with MySQL databases using SQL, However, it is often used in conjunction with other programs to use application that require consistent information. functionality. Easy to store and store information, suitable for applications.

MySQL is free, open source software and can be freely used under the terms of GUN General Public License. under a variety of proprietary licenses. MySQL is owned and sup-ported by the Swedish company MySQL AB, It was acquired by Sun Microsystems. (now Oracle Corporation).[8] In 2010, Oracle acquired Sun, we forked the open source MySQL project to create Wideni-MariaDB.

V. SYSTEM DESIGN

A. OCR Technology Integration:

Utilize OCR technology for accurate extraction of text elements from business card images. Implement algorithms to identify and extract details such as name, company name, job- title, phone number, e-mail addresses, and physical addresses. Integrate OCR libraries or APIs that are reliable and capable of handling various business card formats and languages.[8]

B. Centralized Database:

Choose a robust database system (e.g. MySQL, MongoDB) to store business card data securely. Design the database schema to include tables for storing extracted details, along with additional fields for user added data. Implement indexing and efficient data retrieval mechanisms for quick and effective searches.[10]

C. Security Measures:

Employ industry-standard encryption techniques for secure data transmission between mobile applications and the backend database. Implement secure authentication mechanisms, such as user login credentials and access tokens, to control access to sensitive data.[9]

D. Continuous Improvement and User Feedback: Implement mechanisms for users to provide feedback on the accuracy and usability of the OCR technology. Monitor system performance, analyse user feedback, and identify areas for improvement and optimization.[6]

VI. PROJECT SCOPES

A new way to improve the traditional way of doing business is through mobile applications. This project creates a mobile application that will solve the limitations of traditional business cards. The scope of the project includes a system that can convert data into digital format. Digital data can be exported directly to Excel (csv) format. In addition, the project can store data directly in the MySQL database.

VII. IMPACT, SIGNIFICANCE AND CONTRIBUTION

In recent years, significant research has been conducted on overcome the limitation of business cards with mobile apps. Indicates this race is concerned about the current problems with business cards. Digital business cards are not new to the market. However, the problem of permanent contact information on business cards has not been resolved yet. This is one of the main problems with business cards. In order for users to reach their target audience, the information on the business card must be updated. The contribution of this project is to introduce a new business card distribution model that can change the way of communication between people and ensure correct business card management. It will help thousands of people different businesses keep their business cards in hand and easily connect with each other through their mobile devices. It will also be the next evolution of the business card, best fulfilling the purpose of having a business card: to get reliable information and make connections when necessary.[7]

VIII. METHODOLOGY

A. Function Requirement:

1. Sign Up:

The module allows new users to register in the application. This module allows user for the registration.

2. Log-in Module:

This module allows users to log in to security application.

3. Profile Module:

Modules provide the information of the user and permits user to edit the information about themselves.

4. Scanner Module:

A scanner module is a software component that uses a camera to scan the card/QR code on the business card, extracting the information from a card, saving the information to online database.

5. Get-data Module:

A get-data module allows user to extracting data from the database.

6. Support/Call Module:

A support/call module allows user to call sales team or email and also allows user to give feedback on email.

B. Feature of System:

- Scan business card and get data.
- Data added to online database.
- Get data in excel format.
- Can be used for exhibition stall visit, client visit or visitor coming to your office

B. Hardware and Software Requirement:

1. Hardware requirements:

Any device with minimum 1gb ram in android device
Internet connectivity

2. Software requirement:

MySQL (Database)

IX. CONCLUSION

This project helps to provide a good solution for existing card scanner business and management. Thanks to this application, the process of keeping business records, storing information and obtaining new information has become very easy and convenient. Using today's technology and the internet, this project has ushered in a new era in carrying business cards digitally. We not only digitized our business cards; we came up with the idea of staying fresh and connected with everyone in the future. A business card scanner system eliminates the need for manual data entry. By scanning business cards, the system can automatically extract relevant information such as name, contact details, and company information. This saves time and reduces the risk of errors during login. Actives that inform strategic decision-making and drive continuous improvement in our application's features and functionalities.

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