IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230

ENHANCING DAYCARE MANAGEMENT: INTEGRATING TECHNOLOGY FOR IMPROVED EFFICIENCY AND CARE

MONIKA T[1], A. SATHIYA PRIYA[2]

DEPARTMENT OF INFORMATION TECHNOLOGY,

DR. N.G.P. ARTS AND SCIENCE COLLEGE, COIMBATORE, INDIA[1]

ASSISTANT PROFESSOR, DEPARTMENT OF INFORMATION TECHNOLOGY,

DR. N.G.P. ARTS AND SCIENCE COLLEGE, COIMBATORE, INDIA[2]

Abstract: The childcare industry has undergone a transformation thanks to the use of cutting-edge technology, which has improved parent-caregiver communication, security, and efficiency. A greater level of care and safety is now possible for day-care facilities thanks to the development of digital technologies, including automated attendance systems, real-time CCTV surveillance, and mobile applications for immediate updates. Caretakers may concentrate more on raising and educating children thanks to these technologies, which also simplify administrative duties and provide parents peace of mind. Adoption of cutting-edge technological solutions will be essential to addressing the growing demand for high-quality childcare services and improving the environment for kids to flourish by making it safer, better, and more organized.

Keywords: Daycare management, Technology integration, Efficiency, Care quality, Early childhood education.

I. INTRODUCTION

Since children represent the country's future and its future citizens, they should be nurtured with love and care, much like buds in a garden. A nation's children are its future. They will be the dads and leaders of the nation one day. Therefore, it is essential to create a comfortable environment for them in addition to providing them with proper upbringing, bearing, and development through appropriate education. A perfect childcare facility can be a great home for the kids if it is furnished and incorporates contemporary information and communication technologies. However, our country's current childcare facilities are not sufficiently outfitted with modern technological amenities and operate on a traditional basis. A web-based software system that enables all stakeholders in a contemporary care facility to carry out their responsibilities remotely and interactively is presented in this proposal. In addition to publishing any new events or changes to the daily schedule online and sending alerts to the parents' email and mobile phones, the day-care centre manager can present their facilities to parents in an enticing way. Additionally, parents may be inspired despite their busy schedules if they are informed of their children's daily academic progress. Conversely, parents can get in touch and let the day-care know if their kids can't come because of illness or other commitments. This reciprocal dialogue fosters a nurturing atmosphere and guarantees that everyone is collaborating to provide the best possible care and education for the kids. not available on the internet.

II. PROBLEM STATEMENT

Manually managing day care centers results in inefficiencies, inaccuracies, and difficulty in tracking child growth, staff management, and parent communication. Daycare administrators confront difficulties in keeping correct data, effectively interacting with parents and staff, assuring regulatory compliance, and tracking child growth. To address these difficulties, a centralized daycare management system is required, which automates manual operations, improves communication, assures compliance, and provides improved tracking and assistance for child development, ultimately enhancing overall child care quality.

III. SCOPE

Examining the creation and application of an all-inclusive daycare management system with an emphasis on its effects on staff productivity, parent satisfaction, and childcare quality is the goal of this study. This study's scope includes

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230

investigating current day-care management systems in detail, identifying the main issues and needs, and designing and testing a suggested solution. The research will utilize a mixed-approaches strategy, integrating qualitative and quantitative techniques for gathering and analyzing data. By offering insights to scholars, practitioners, and policymakers, the research findings will add to the body of knowledge already available on daycare management systems.

IV. OBJECTIVES

The objective of the Daycare System is to create a comprehensive digital platform that modernizes the way daycare services are managed and accessed. The system aims to eliminate inefficiencies and manual errors associated with traditional processes, ensuring a seamless experience for both daycare administrators and parents. It seeks to centralize all daycare-related activities, enabling efficient management of babysitters, real-time updates, and transparent communication between stakeholders.

The solution ensures operational efficiency by making it easier for administrators to manage babysitter information and registration records. It gives parents a simple way to see the credentials and availability of babysitters, which builds confidence. The ultimate objective is to provide a more dependable and effective daycare experience by lowering administrative hassles, increasing accuracy, improving communication, and saving time for all parties.

V. PROPOSED SYSTEM

By providing an automated, transparent, and user-friendly platform for daycare management, the suggested Daycare System is a cutting-edge, web-based solution created to overcome the shortcomings of the current system. In order to improve communication between childcare administrators and parents, minimize errors, and expedite operations, the system incorporates cutting-edge technologies with a centralized database. Both parents and administrators stand to win from the system's design: parents will find it easy to choose babysitters and enroll their kids in daycare, while administrators will have effective tools to manage babysitter profiles. All babysitter records and enrollment information are kept in a single database under the suggested system, guaranteeing reliable and convenient data. The time and effort needed for manual changes are decreased when administrators use a few clicks to quickly add, alter, or remove babysitter profiles. This unified platform guarantees that the data is correct and current by removing the possibility of data duplication or mismanagement. The proposed system's capacity to provide real-time updates is essential since it enables parents and administrators to rapidly monitor babysitter availability and enrollment status. By doing this, problems like overbooking or out-of-date records are avoided, and parents are guaranteed access to the most recent information.

The transparency provided by the suggested system is among its most important benefits. Parents get access to comprehensive profiles of babysitters that include availability, experience, and qualifications. This builds confidence and trust by enabling parents to choose daycare providers for their kids with knowledge. The parent enrolling process is intended to be simple and effective. Compared to traditional methods, parents can save time and effort by choosing a babysitter and completing the enrollment procedure with a few clicks.

VI. SYSTEM DESIGN AND DEVELOPMENT

SYSTEM DESIGN

Designing software or web applications involves creating specifications for application artifacts while adhering to various constraints. It encompasses all activities from conceptualization to development and modification of complex systems, functioning as a stylized software engineering process between requirements specification and programming. This discipline focuses on both high-level architectural design and the planning of low-level components and algorithms, emphasizing problem-solving throughout the software solution development.

DATABASE DESIGN

Data organization based on a database model is known as database design. What data has to be saved and how the data elements relate to one another are decided by the designer. Equipped with this knowledge, they can start fitting the data to the database model. Classifying data and determining links between them are key components of database architecture.

VII. E-R DIAGRAM

A structural diagram used in database design is called an entity relationship diagram (ERD). It uses a variety of connectors and symbols to show the main components of a system and how they relate to one another. An ERD's components are necessary to visualize the database's relational structure.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

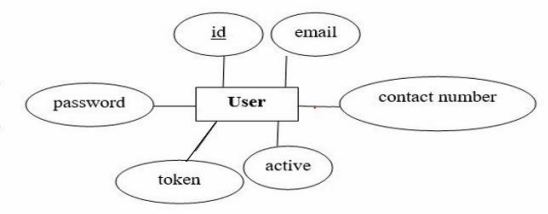
Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230

- Rectangles representing entity sets.
- Ellipses representing attributes.
- Diamonds representing relationship sets.
- Lines linking attribute to entity sets and entity sets to relationship sets.

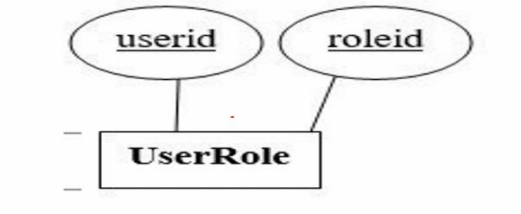
E-R DIAGRAM FOR USER

User information: The user entity contains the user information like ID, name, email, password, contact number, etc.

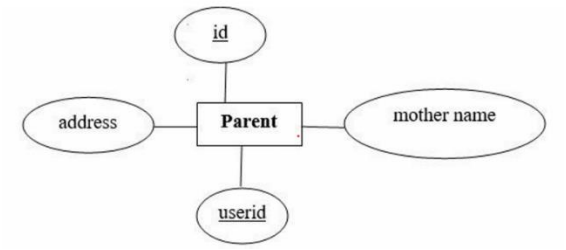


Role: The role entity contains the role information like ID, name, etc.

UserRole: The user role entity contains the user ID and role ID. It's the intermediate table for the user and the role of many-to-many relations.

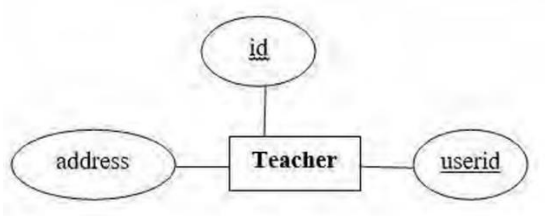


Parents: The parent entity contains the parent information like ID, user ID, mother name, address, etc. It has a one-to-one relationship with the user.



Doctors: The doctor entity contains the doctor's information, like ID, user ID, address, etc. It has a one-to-one relationship with the user**.**

Teachers: The teacher entity contains the teacher's information, like ID, user ID, address, etc. It has a one-to-one relationship with the user.



IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

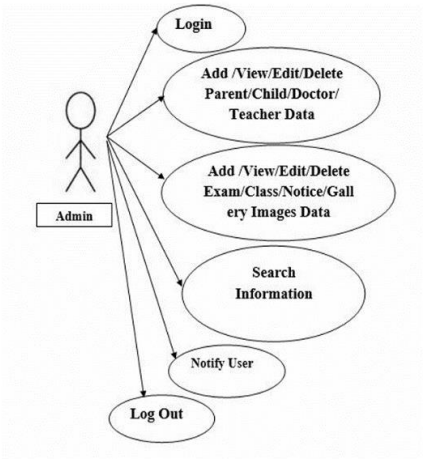
DOI: 10.17148/IARJSET.2025.12230

Use Case Diagram

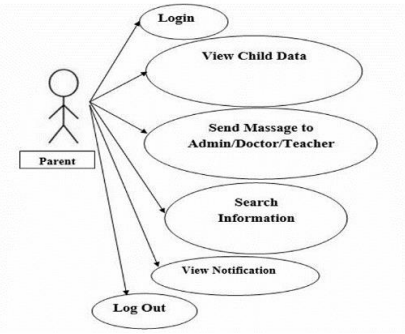
Look at the E-R diagram. An illustration of how the components of a system interact with one another is called a use case diagram. One technique for identifying, elucidating, and organizing system requirements in system analysis is the use. A "system" is something that is being created or run in this context, such as a website for mail-order product sales and services. A common notation for modeling real-world objects and systems, UML (Unified Modeling Language) makes use of use case diagrams. General requirements planning, hardware design validation, software product testing and debugging, online help reference creation, and customer service tasks are a few examples of system objectives.

Use Case Diagram of Admin

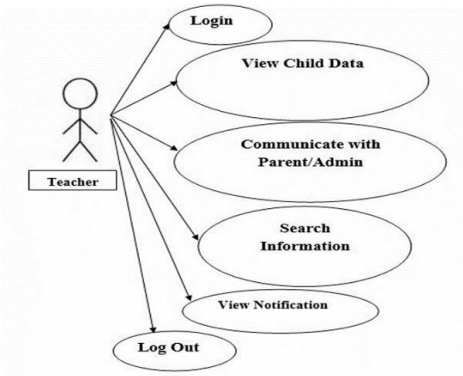
The use case diagram for the admin. Admin can add/view/edit/delete parent/child/doctor/teacher data. Admin can also add/view/edit/delete exam/class/notice/gallery images data. And also notify user for different information's like exam date.



Use Case Diagram of Parent



Use Case Diagram of Teacher



IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230

VIII. IMPLEMENTATION

Implementation

In this phase, the designs are translated into code. Computer programs are written using a conventional programming language or an application generator. Different high-level programming languages like PHP, MySQL, SQL, and HTML are used for coding. Concerning the type of application, the right programming language is chosen. In this project, we use PHP and JS.

System Testing

The system is tested during this stage. Programs are typically built as a sequence of discrete modules, each of which is tested separately and in great detail. After that, the entire system is tested. The various modules are combined and put through a comprehensive system examination. The system undergoes testing to make sure that module interfaces function (integration testing), that it operates on the platform of choice and with the anticipated volume of data (volume testing), and that it fulfills user needs.

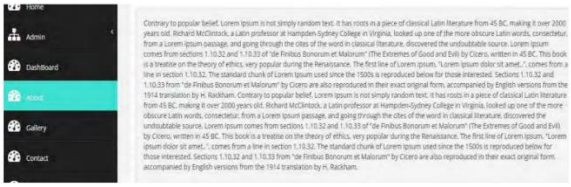
IX. THE FUTURE OF DAYCARE: EMBRACING TECHNOLOGICAL ADVANCEMENTS

The adoption of technological innovations that improve care quality, safety, and efficiency is poised to revolutionize the childcare industry in the future. The highest standards of kid safety are guaranteed by intelligent security solutions like real-time video monitoring and biometric access restrictions. Digital management tools reduce errors and save time by streamlining administrative activities including cloud-based record-keeping and automated attendance tracking. Parent communication applications strengthen the bond between parents and caregivers by offering real-time notifications, images, and videos. Wearable technology keeps an eye on kids' health indicators to make sure they're healthy, while intelligent environmental controls keep daycare facilities in top shape. Digital curricula and interactive learning resources provide individualized educational experiences that accommodate each child's particular requirements and learning style. Staff members receive ongoing professional development through virtual reality simulations and online training courses, guaranteeing that caregivers have the newest information and abilities. Daycare facilities can improve overall service quality by using data analytics and reporting technologies to make well-informed, data-driven decisions. By incorporating these technology innovations, childcare facilities may optimize their operations for the future, foster strong relationships with parents, and provide a secure, stimulating, and caring environment for kids.

X. RESULTS AND DISCUSSIONS

ABOUT SECTION

In the About section, the admin can put some information about the daycare center.



GALLERY SECTION

In this section, various images of the daycare center and its activities will be shown. On clicking on a single image, the user can show the details about the image.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

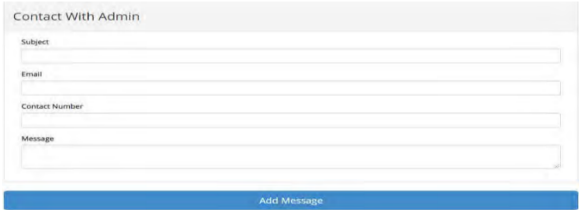
International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230

CONTACT SECTION

In this section, there is a contact form to contact the admin of the daycare center.



LOGIN SECTION

The login section of the management system is crucial for controlling access to the system's backend. It includes a form requiring an email, password, and role to ensure that only authorized users can log in. This feature enhances security, allowing users to log in when needed and log out when their access is no longer required.

REGISTER SECTION

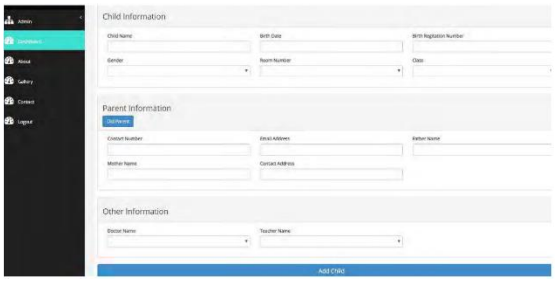
By clicking on register button on sidebar, user show a registration form to register as parent.

DASHBOARD

This system have 4 types of user role (admin, parent, doctor, and teacher). If a user is authenticate, it will see dashboard panel based on their user role.

ADMIN DASHBOARD

If the authentic user role is admin, it will redirect to a page to add child, parent details.



IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

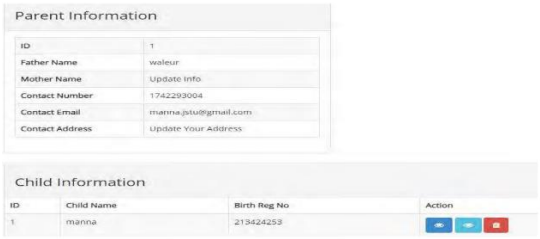
International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230

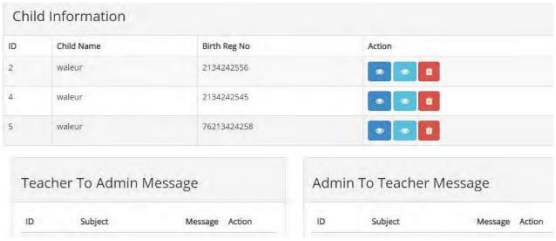
PARENT DASHBOARD

If the authentic user role is 'parent.'. It will redirect to a page where the user sees detailed information. It also sees children's information details.



TEACHER DASHBOARD

If the authentic user role is 'teacher.'. It will redirect to a page where the user sees detailed information. It also sees children's information details under it. It also has the option to send a message/email to the admin.



ADMIN (AUTHENTIC ADMIN USER) SECTION

If the authentic user is an admin, it has some extra features on the sidebar menu. Those features manage the application system.

USER

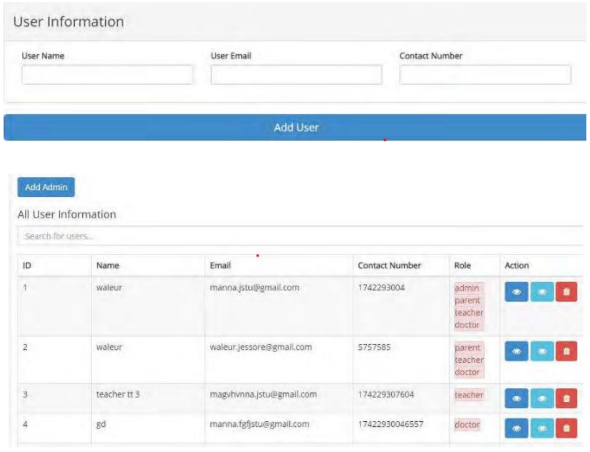
User Section manages the daycare center users. That is to add/delete/edit user data. This section has access to create new admins or modify user roles. The user has an email, name, contact number, password, etc.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 12, Issue 2, February 2025

DOI: 10.17148/IARJSET.2025.12230



CHILD

The child section manages the daycare center children. That is to add/delete/edit children's data.

XI. CONCLUSION

As the nuclear family and working parent increase day by day, the demand for daycare centers increases simultaneously. So it is time to introduce a daycare center with modern tools and technology. It is required to manage information and communicate with parents through a digital system. In this project, an ICT-equipped modern daycare center is presented. It reduces manual workload, cuts down on errors, and finally improves service levels. It is user-friendly with a responsive design. In addition, it is a multi-user, role-based system, and there is no limitation on the number of simultaneous users. The security of the system has been maintained, and only authorized users have access to the system backend. In the future, many new features can be added to enhance the system.

REFERENCES

[1]. "The Impact of Technology on Childcare: A Systematic Review" (2020) - Journal of Child and Family Studies, Vol. 29, No. 10, pp. 2819-2833.
[2]. "Daycare Management Systems: A Review of the Literature" (2019) - Journal of Educational Technology Development and Exchange, Vol. 11, No. 1, pp. 1-18.
[3]. "Technology Integration in Early Childhood Education: A Case Study" (2018) - Journal of Early Childhood Teacher Education, Vol. 38, No. 2, pp. 147-164.
[4]. "Technology and Young Children: A Guide for Early Childhood Educators" (2020) - Edited by S. Edwards and H. P. Ginsburg, Routledge.
[5]. "Daycare Management: A Practical Guide" (2019) - By J. Smith and K. Johnson, Cengage Learning.
[6]. "Designing a Daycare Management System: A User-Centered Approach" (2020) - Proceedings of the 2020 International Conference on Human-Computer Interaction, pp. 1-8.
[7]. "Technology Integration in Daycare Centers: Challenges and Opportunities" (2019) - Proceedings of the 2019 International Conference on Early Childhood Education, pp. 1-6.
[8]. National Association for the Education of Young Children (NAEYC) (n.d.). Technology and Young Children. Retrieved from (link unavailable)
[9]. American Academy of Pediatrics (AAP) (n.d.). Media Use in School-Aged Children and Adolescents. Retrieved from (link unavailable)