



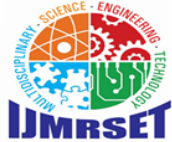
International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 8, Issue 4, April 2025



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

An Online Platform for Welding Fabrication Resources and Customization

Dr. Dhivya. K, Srivishnu Y

Assistant Professor, Department of Commerce CA, Dr. N.G.P Arts and Science College, Coimbatore, Tamil Nadu,
India

III B.COM CA -Student, Department of Commerce CA, Dr. N.G.P Arts and Science College, Coimbatore, Tamil Nadu,
India

ABSTRACT: The advancement of digital technologies has transformed the welding fabrication industry, enabling seamless access to resources and customization options through web-based platforms. This paper presents the development of an online web application that provides welding professionals with an integrated system for accessing fabrication resources, design customization, and automated workflows. The application leverages PHP for server-side scripting and MySQL for efficient data storage and retrieval. Automation is implemented to streamline order processing, material estimation, and design validation, reducing manual efforts and errors.

KEYWORDS: Web Application, Automation, PHP, MySQL, Database Security.

I. INTRODUCTION

The welding fabrication industry plays a crucial role in manufacturing, construction, and industrial applications, requiring precise designs, high-quality materials, and efficient production workflows. Traditional welding fabrication processes often involve manual efforts in resource selection, design customization, and order management, leading to delays and inefficiencies. With the increasing demand for digitization, an online platform for welding fabrication resources and customization offers a modern solution to streamline these processes. This web-based application utilizes PHP as the backend technology and MySQL for database management, ensuring efficient data storage and retrieval. Automation is integrated into the system to enhance workflow efficiency, enabling real-time customization, order processing, and material estimation with minimal human intervention. Additionally, database security is a critical aspect, with measures such as encryption, secure authentication, and access control implemented to protect user data and ensure safe transactions.

OBJECTIVES

1. To develop a web application that provides welding fabrication resources and customization options using PHP and MySQL for efficient data management.
2. To integrate automation in order processing, material estimation, and design customization, reducing manual intervention and improving workflow efficiency.
3. To ensure database security by implementing encryption, secure authentication, and access control mechanisms for protecting user data and transactions.

II. LITERATURE REVIEW

1. Rao(2018):
Rao highlights the importance of integrating digital tools into welding education and fabrication planning. He emphasizes that online platforms can improve accessibility to welding resources and help users make informed decisions about materials and processes.
2. ZhangandLi(2020):
Zhang and Li developed a cloud-based platform that supports real-time collaboration in welding design. Their system enables users to customize welding processes and interact with CAD models remotely, enhancing both flexibility and efficiency.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

3. KimandPark(2019):
Kim and Park introduced an online marketplace for welding services, connecting customers with fabricators. Their platform allows job customization, quoting, and reviews, making welding services more transparent and accessible.
4. AhmedandKhan(2021):
Ahmed and Khan explored how Industry 4.0 technologies like IoT and AI improve welding processes. Their research shows that smart online platforms can offer real- time monitoring and customizable fabrication options.
5. Brown(2022):
Brown focused on online welding training platforms, showing how virtual simulations and digital tutorials help users learn welding techniques and customize their learning experiences for better skill development.

III. EXISTING SYSTEM

A. Description of the Existing System

The current system for purchasing fabrication materials depends on physical stores, requiring customers to visit in person, which is both time-consuming and inconvenient. Manual inventory management often leads to errors and inefficiencies. Additionally, customers face challenges such as limited product information and a lack of real-time support. To overcome these issues, I have developed key features, including product listings, a shopping cart, a signup and login system, and a dashboard to enhance user experience and streamline operations.

B. Weakness of the Existing System

The existing systems for welding fabrication resources and customization have several drawbacks, including:

1. Lack of Automation – Many traditional and digital welding fabrication systems rely on manual input for order processing, material estimation, and customization, leading to inefficiencies and human errors.
2. Fragmented Solutions – Existing platforms often do not provide an all-in-one solution for resource management, design customization, and order tracking, forcing users to depend on multiple tools.
3. Limited Accessibility – Many systems are offline or locally hosted, restricting remote access and collaboration between fabricators and customers.
4. Security Vulnerabilities – Older systems may lack modern database security measures such as encryption, role-based access control, and secure authentication, making them prone to data breaches and unauthorized access.

IV. DEVELOPED SYSTEM

A. Description of the Developed System

The Developed System for the Online Platform for Welding Fabrication Resources and Customization is a web application designed to streamline the welding fabrication process through automation, secure database management, and user-friendly customization options.

Key Features of the Developed System

1. User Management
 - Secure user registration and login with authentication.
 - Role-based access control for customers and fabricators.
2. Welding Fabrication Resource Management
 - Display of available materials, designs, and services.
 - Real-time updates on resource availability.
3. Customization Module
 - Users can modify welding designs as per requirements.
 - Automated material estimation and cost calculation.
4. Order Management & Processing
 - Customers can place orders and track their status.
 - Automated order processing, reducing manual intervention.

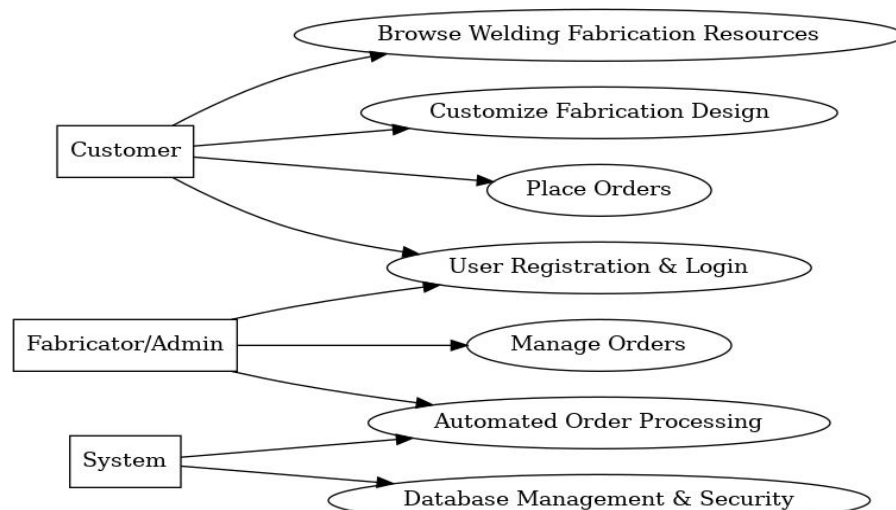


International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

- Fabricators can update order progress and completion status.
- 5. Automation & Workflow Optimization
 - Automated notifications for order updates and approvals.
 - AI-based recommendations for welding designs (if applicable).
- 6. Database Security & Management
 - MySQL database for structured and efficient data storage.
 - Encryption techniques to protect sensitive data.
 - Role-based access and secure authentication to prevent unauthorized access.

USE CASE DIAGRAM:



V. RESULTS AND DISCUSSION

LOGIN MODULE

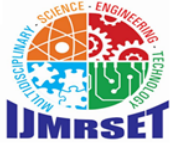
The Login Module is a critical component that ensures secure access to the web application for both customers and fabricators. It includes authentication mechanisms to protect user data and prevent unauthorized access.



LOGIN

Login to make a purchase.

[Don't have an account yet? Register](#)



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

USER REGISTRATION MODULE

The User Registration Module allows customers and fabricators to securely create accounts in the system. This module ensures secure data handling, role-based access, and protection against common security threats.

WELDING FABRICATION

 Sign Up

 Login

SIGN UP

1. DATABASE DESIGN

The system uses MySQL as the database management system. The key tables include:

Table: Admin

Column Name	Data Type	Constraints	Description
id	INT (11)	PRIMARY KEY, AUTO_INCREMENT	Unique Admin ID
username	VARCHAR (50)	UNIQUE, NOT NULL	Admin username
password	VARCHAR (255)	NOT NULL	Hashed password
created_at	TIMESTAMP	DEFAULT CURRENT_TIMESTAMP	Admin account creation time



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Table: Customer

Column Name	Data Type	Constraints	Description
id	INT (11)	PRIMARY KEY, AUTO_INCREMENT	Unique User ID
username	VARCHAR (50)	UNIQUE, NOT NULL	User's chosen name
email	VARCHAR (100)	UNIQUE, NOT NULL	User's email
password	VARCHAR (255)	NOT NULL	Hashed password
created_at	TIMESTAMP	DEFAULT CURRENT_TIMESTAMP	User registration timestamp

2. RESULTS

Results:

1. Ensure that all features function correctly.
2. Identify and fix errors before deployment.
3. Verify the system's security against fake reviews.
4. Improve the user experience and system efficiency.
5. Confirm that the system meets business and functional requirements.

VI. CONCLUSION

In conclusion, the development of an online platform for welding fabrication resources and customization represents a significant step forward in modernizing and streamlining the metalworking industry. By providing easy access to essential resources, expert knowledge, and customizable fabrication tools, such a platform empowers professionals, hobbyists, and businesses alike to enhance productivity, improve accuracy, and reduce costs. Furthermore, integrating features like real-time quoting, 3D visualization, and direct collaboration between clients and fabricators opens new avenues for innovation and customer satisfaction. As digital transformation continues to shape traditional industries, this platform serves as a crucial bridge between craftsmanship and technology, ensuring welding fabrication keeps pace with the evolving demands of today's market.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

REFERENCES

1. American Welding Society. (n.d.). Welding processes and technology. Retrieved from <https://www.aws.org>
2. Kalpakjian, S., & Schmid, S. R. (2014). Manufacturing engineering and technology (7th ed.). Pearson Education.
3. Groover, M. P. (2020). Fundamentals of modern manufacturing: Materials, processes, and systems (7th ed.). Wiley.
4. Li, L., Chen, L., & Lin, Z. (2019). Digital fabrication and its impact on manufacturing. Journal of Manufacturing Systems, 52, 100–110. <https://doi.org/10.1016/j.jmsy.2019.05.007>
5. Autodesk. (n.d.). Fusion 360 for welding and fabrication. Retrieved from <https://www.autodesk.com>
6. Fabrication Online. (2023). Custom metal fabrication: Online quoting and design tools. Retrieved from <https://www.fab-online.com>
7. ISO. (2017). ISO 4063: Welding and allied processes – Nomenclature of processes and reference numbers. International Organization for Standardization.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com