A

PROJECT REPORT

ON

"Online Scrap Dealers"

For the Subject **Project Phase 2**

Submitted in partial fulfilment of the requirement for the award of

Bachelor of Engineering

In

Computer Science Engineering

Dr. Babasaheb Ambedkar Technological University, Lonere

By

Name	PRN No.
Sakib Parvez Shaikh	T2162191242565
Srinidhi Galande	T2162191242504
Numan Madni	T2162191242564
Nikhil Tangadgi	T2162191242530

UNDER THE GUIDANCE OF.

Prof. C.M. Jadhav

DEPARTMENT OF COMPUTER SCIENCE ENGINEERGING,

BHARAT RATNA INDIRA GANDHI COLLEGE OF ENGINEERING,

KEGAON, SOLAPUR-413255.

(2023-2024)

CERTIFICATE

This is to certify that the Project entitled

“Online Scrap Dealers”

Submitted by

Name	PRN No.
Sakib Parvez Shaikh	T2162191242565
Srinidhi Galande	T2162191242504
Numan Madni	T2162191242564
Nikhil Tangadgi	T2162191242530

Has been carried out by the student of final year under the guidance of Prof. C.M. Jadhav during the year 2023-24 in partial fulfilment for the award of Degree, Bachelor of Engineering in Computer Science Engineering as per requirements of Dr. Babasaheb Ambedkar Technological University.

(Prof. C.M. Jadhav)	Dr. Najmuddin Aamer	Dr. Syed Gilani Pasha
Project Guide	Head, Dept of CSE.	Principal
BIGCE, Solapur	BIGCE, Solapur	BIGCE, Solapur

Project Approval Sheet

The Project Entitled

"Online Scrap Dealers"

Is hereby approved in partial fulfilment for the award of Degree, Bachelor of Engineering in Computer Science Engineering and is carried out by,

Name	PRN No.
Sakib Parvez Shaikh	T2162191242565
Srinidhi Galande	T2162191242504
Numan Madni	T2162191242564
Nikhil Tangadgi	T2162191242530

Is hereby approved in partial fulfilment for the Bachelor's Degree of Engineering in Computer Science Engineering and is carried out by

(Prof. C.M. Jadhav)
Project Guide

(Dr. Najmuddin Aamer)
Head
Dept. of CSE

DEPARTMENT OF COMPUTER SCIENCE ENGINEERGING,
BHARAT RATNA INDIRA GANDHI COLLEGE OF ENGINEERING,
KEGAON, SOLAPUR-413255.
(2023-2024)

ACKNOWLEDGEMENT

It gives us immense pleasure in thanking all those who have helped us in successful completion of the project titled

" Online Scrap Dealers "

This project itself as an acknowledgement to the intensity, drive and technical competency of many individuals, who have completed it.

First and foremost, we sincerely thank our **Guide Prof. C.M. Jadhav** for showing keen interest, the true spirit of engineering and guiding us on the various aspects of our project without which it would have been impossible for us to complete the project.

We are also thankful to the faculty of department concerned directly or indirectly with our project for their help and guidance.

We would like to thank our Head of department, **Dr. Najmuddin Aamer** for supporting us and guiding us to complete our project successfully.

We sincerely thank our principal **Dr. Syed Gilani Pasha** for his wholehearted co-operation in the completion of this project. We would also like to thank all staff members for their wholehearted co-operation in completing this project.

DEPARTMENT OF COMPUTER SCIENCE ENGINEERGING,
BHARAT RATNA INDIRA GANDHI COLLEGE OF ENGINEERING,
KEGAON, SOLAPUR-413255.
(2023-2024)

INDEX

INTRODUCTION

In an era where sustainability and environmental consciousness are paramount, the management of scrap materials holds immense significance. Traditional methods of scrap disposal often lack efficiency, transparency, and accessibility, leading to environmental hazards and economic inefficiencies. Recognizing these challenges, the emergence of online scrap dealers presents a transformative solution to streamline scrap management processes. Our project seeks to explore and implement an innovative platform that connects scrap generators with online scrap dealers, revolutionizing the way scrap materials are handled and repurposed. By leveraging digital technologies and the power of online connectivity, we aim to facilitate a seamless exchange of scrap materials while promoting sustainability, efficiency, and economic viability.

Key objective:

Efficiency Enhancement:

Traditional scrap disposal methods are often marred by inefficiencies, including logistical challenges and lack of real-time information. Our platform aims to streamline the process by providing a centralized marketplace where scrap generators can easily connect with reputable online scrap dealers, eliminating intermediaries and reducing transactional friction.

Transparency and accountability:

Transparency is crucial in the scrap management ecosystem to ensure ethical practices and environmental compliance. Through our platform, users will have access to comprehensive information regarding the handling, processing, and recycling of scrap materials, fostering trust and accountability within the supply chain.

Environmental impact:

Effective scrap management is integral to mitigating environmental degradation and promoting sustainable resource utilization. By facilitating the recycling and repurposing of scrap materials, our platform contributes to reducing the carbon footprint associated with waste disposal and conserving valuable natural resources.

Market expansion:

Online platforms have the potential to connect scrap generators with a broader network of potential buyers, transcending geographical boundaries and expanding market reach. This not only enhances opportunities for scrap dealers but also encourages greater participation in recycling initiatives among businesses and individuals.

Innovation and Adaptibility: The scrap management landscape is continuously evolving, driven by technological advancements and changing market dynamics. Our project is committed to fostering innovation and adaptability, ensuring that our platform remains responsive to emerging trends and user needs.

LITERATURE REVIEW

In recent years, the integration of digital technologies into the scrap management sector has garnered significant attention from researchers and practitioners alike. This literature review aims to provide a comprehensive overview of existing studies, insights, and trends relevant to the emergence of online scrap dealers, highlighting key themes, challenges, and opportunities in this evolving domain.

Evolution of scrap management practices:

Historically, scrap management has been characterized by fragmented processes, limited transparency, and inefficiencies in material flow. Scholars such as Liu et al. (2018) have documented the evolution of scrap management practices, emphasizing the transition from traditional manual sorting methods to automated systems and digital platforms. The advent of online scrap dealers represents a paradigm shift in how scrap materials are sourced, processed, and redistributed within the circular economy framework.

Digitalization and Technological innovation:

The rise of digitalization and technological innovation has played a pivotal role in reshaping the scrap management landscape. Research by Zhang et al. (2020) underscores the transformative potential of digital platforms in optimizing scrap collection, inventory management, and market transactions. Online scrap dealers leverage advanced technologies such as data analytics, IoT sensors, and blockchain to enhance transparency, traceability, and decision-making processes across the value chain.

Market Dynamics and economic implications:

The emergence of online platforms for scrap trading has altered market dynamics and economic relationships within the industry. Studies by Song et al. (2019) highlight the role of online marketplaces in expanding market reach, reducing transaction costs, and facilitating price discovery for scrap materials. However, challenges such as price volatility, regulatory compliance, and market fragmentation pose significant hurdles to the sustainable growth of online scrap trading ecosystems.

Environmental Sustainability and Circular economy principles:

Central to the discourse on online scrap dealers is their potential to advance environmental sustainability and circular economy principles. Research by Ghinea et al. (2021) underscores the environmental benefits of diverting scrap materials from landfills through recycling and repurposing initiatives facilitated by online platforms. By promoting resource efficiency, waste reduction, and carbon footprint mitigation, online scrap dealers contribute to the broader agenda of sustainable development and climate action

PROJECT SCOPE

Objectives: The primary objective of this project is to develop and implement an online platform that connects scrap generators with online scrap dealers, facilitating a seamless exchange of scrap materials and promoting sustainable scrap management practices.

Key Deliverables:

Development of a user-friendly online platform accessible to scrap generators and scrap dealers. Implementation of features for scrap listing, bidding, transaction management, and communication between users. Integration of digital technologies such as data analytics, IoT sensors, and blockchain to enhance transparency and efficiency in scrap management processes.

Functional Requirements:

User registration and authentication for both scrap generators and scrap dealers. Scrap listing functionality allowing users to upload details and images of available scrap materials. Bidding system enabling scrap dealers to place competitive bids on listed scrap materials. Transaction management features for negotiating terms, finalizing deals, and tracking the status of transactions. Communication tools facilitating direct interaction between scrap generators and scrap dealers regarding scrap availability, pricing, and logistics.

Technical Infrastructure:

Development of a scalable and secure online platform hosted on reliable servers with robust data protection measures. Integration of APIs and third-party services for real-time data exchange, payment processing, and communication functionalities. Implementation of responsive design principles to ensure compatibility across devices and browsers.

Quality Assurance and Testing:

Conducting thorough testing of the online platform to identify and address any bugs, errors, or usability issues. Implementing quality assurance measures to ensure data integrity, system reliability, and user satisfaction.

Stakeholder Engagement:

Engaging with stakeholders including scrap generators, scrap dealers, regulatory authorities, and environmental organizations to gather feedback and address concerns. Collaborating with industry partners and relevant stakeholders to promote adoption and utilization of the online platform.

Sustainability and Impact:

Evaluating the environmental impact and sustainability implications of diverting scrap materials from landfills through the online platform. Monitoring the economic and social benefits of enhanced scrap management practices facilitated by the platform, such as reduced waste disposal costs and increased revenue opportunities for scrap dealers.

Future Expansion and Enhancement:

Planning for future enhancements and updates to the online platform based on user feedback, technological advancements, and market trends. Exploring opportunities for expanding the scope of services offered by the platform, such as additional features for scrap recycling, material recovery, and waste management.

Timeline and Milestone:

Developing a detailed project timeline with defined milestones for each phase of development, testing, and deployment. Regularly monitoring progress and adjusting timelines as needed to ensure timely delivery of project objectives.

Risk Management:

Identifying potential risks and challenges associated with project implementation, such as technical issues, regulatory compliance, and market acceptance. Developing risk mitigation strategies and contingency plans to address unforeseen obstacles and minimize project disruptions.

Ethical Consideration:

Ensuring compliance with ethical standards and regulations governing data privacy, intellectual property rights, and fair business practices. Prioritizing transparency, integrity, and accountability in all interactions and transactions facilitated by the online platform.

PROJECT GOAL

Our project aims to establish an innovative online platform that revolutionizes the scrap management industry. By seamlessly connecting scrap generators with reputable scrap dealers, our goal is to promote sustainability, efficiency, and transparency in scrap material transactions. We aim to simplify the process of listing, bidding, and finalizing transactions for scrap materials, fostering a seamless exchange between stakeholders. Through environmentally responsible practices such as recycling and repurposing, facilitated by the platform, we seek to contribute to resource conservation and waste reduction efforts. Leveraging digital technologies like data analytics and blockchain, our platform will optimize scrap collection, inventory management, and market transactions, enhancing overall efficiency. Transparency and traceability will be prioritized, ensuring trust and accountability among users. Furthermore, by expanding market reach, reducing transaction costs, and promoting fair pricing, we aim to drive economic growth for stakeholders. Engaging with regulatory authorities, environmental organizations, and other stakeholders, we will gather feedback and promote collaborative efforts towards sustainable scrap management practices. Our project will foster innovation and continuous improvement, driving ongoing enhancements to the platform and contributing to a greener, more sustainable future for all involved.

REQUIREMENTS

SYSTEM REQUIREMENT:

- Processor: Intel inside core i3 or better.
- Internet connection to download and install html, CSS, JS, PHP, Xampp.
- Ram: 8GB or more Hard Disk: 2GB of free space
- Operating system: Windows 8 or above, MacOS, Linux.

SOFTWARE REQUIREMENT

HTML: HTML, which stands for Hyper Text Markup Language, is the standard markup language used for creating web pages. It describes the structure of a web page through a series of elements. These HTML elements instruct the browser on how to display the content, labeling pieces of content such as "this is a heading," "this is a paragraph," and "this is a link." The purpose of web browsers like Chrome, Edge, Firefox, and Safari is to read HTML documents and display them correctly.

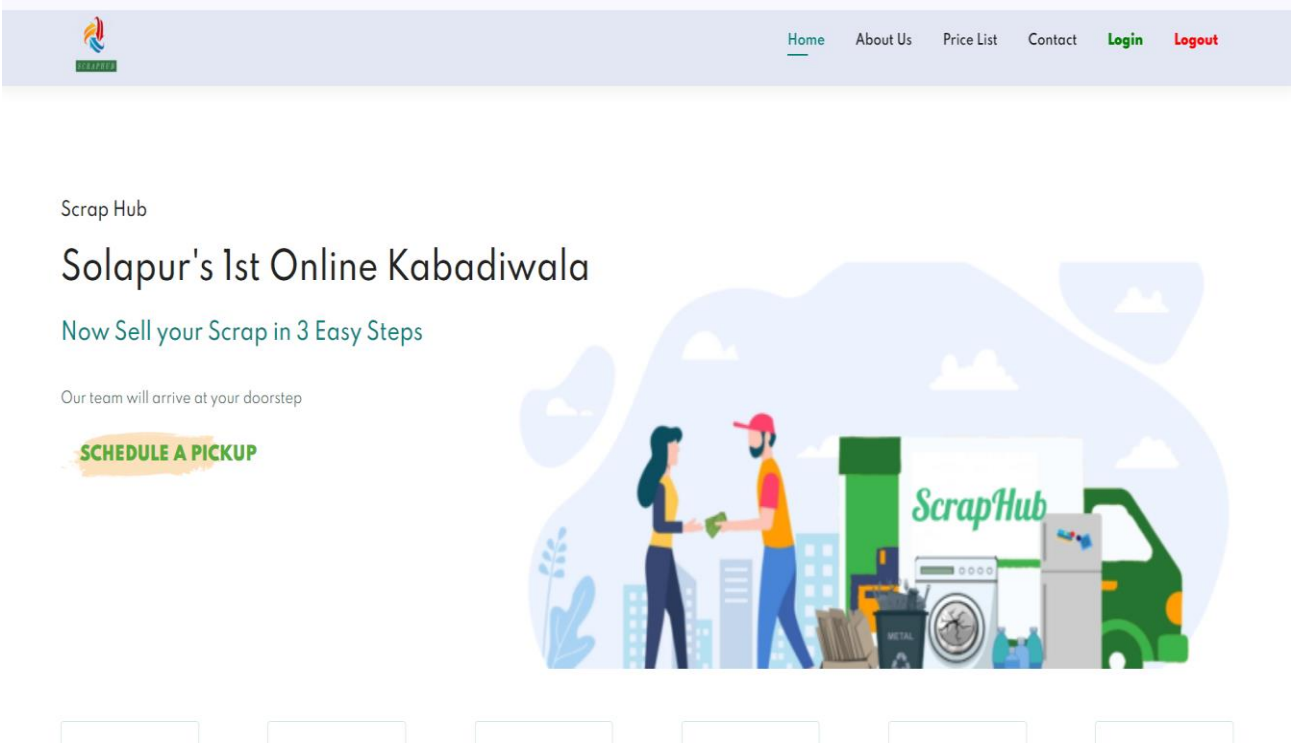
FEATURES OF HTML -5 :HTML provides tags that are used for navigating from one page to another, making it essential for internet navigation. It also supports responsive UI, enabling HTML pages to work well on all platforms, including mobile devices, tablets, desktops, and laptops. Additionally, HTML pages can be made available offline once loaded, eliminating the need for an internet connection.

CSS: CSS, which stands for Cascading Style Sheets, describes how HTML elements are to be displayed on screens, paper, or other media. It saves a lot of work by controlling the layout of multiple web pages all at once through external stylesheets stored in CSS files. CSS is used to define styles for web pages, including design, layout, and variations in display for different devices and screen sizes .

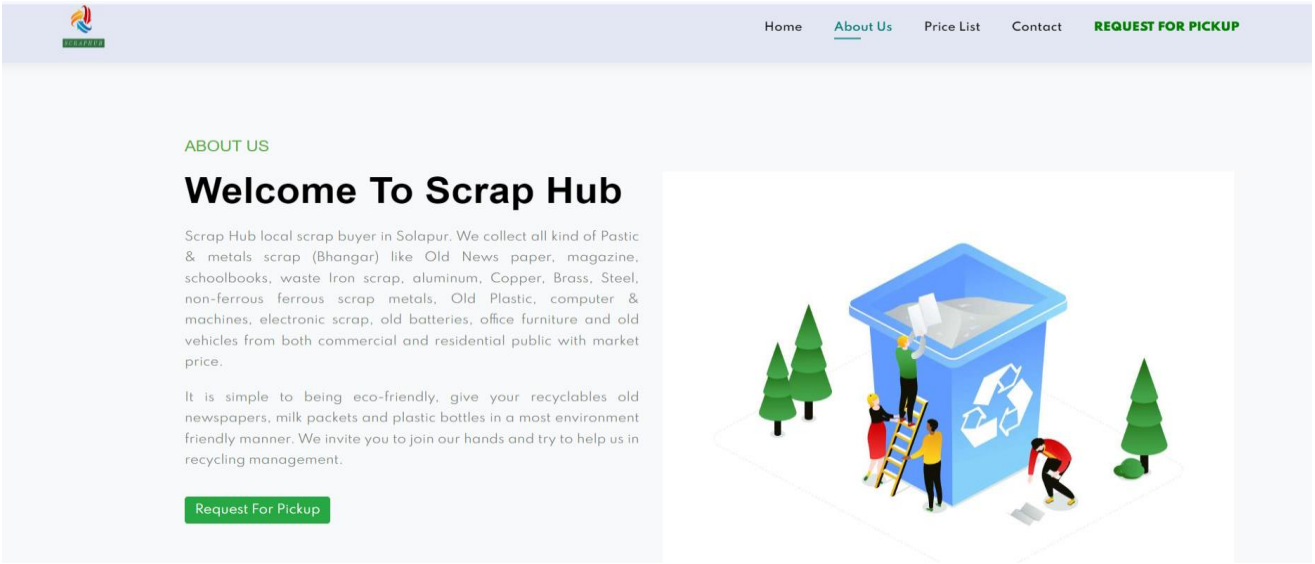
Visual Studio Code: Visual Studio Code is a versatile and powerful source code editor that provides developers with a wide range of tools for editing, debugging, and optimizing code. It supports multiple programming languages and features extensions to enhance functionality, making it a popular choice for web development projects, including creating a Netflix clone with HTML, CSS, and JavaScript.

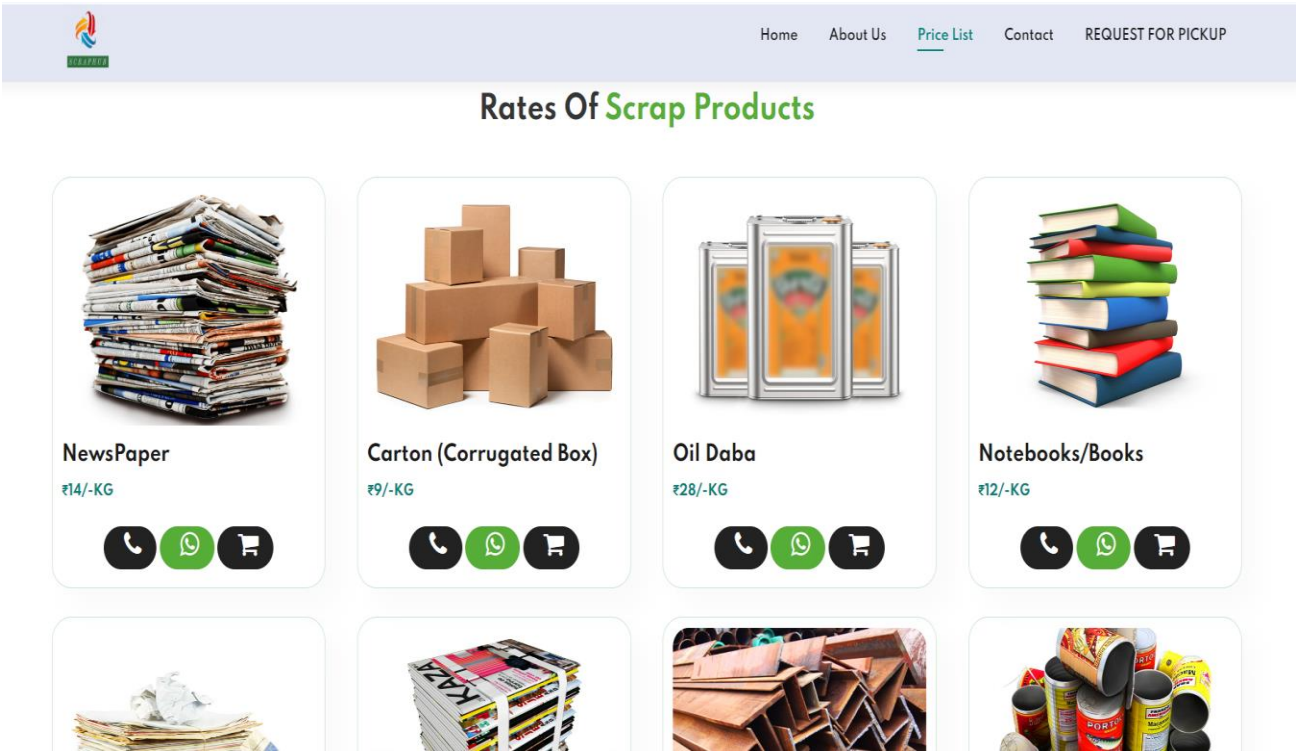
PHP : PHP is a server-side scripting language commonly used for web development. It's open-source and can be embedded into HTML, making it easy to generate dynamic content on web pages.

OUTPUT



Home page





Product's Price List Page

PROJECT DESIGN

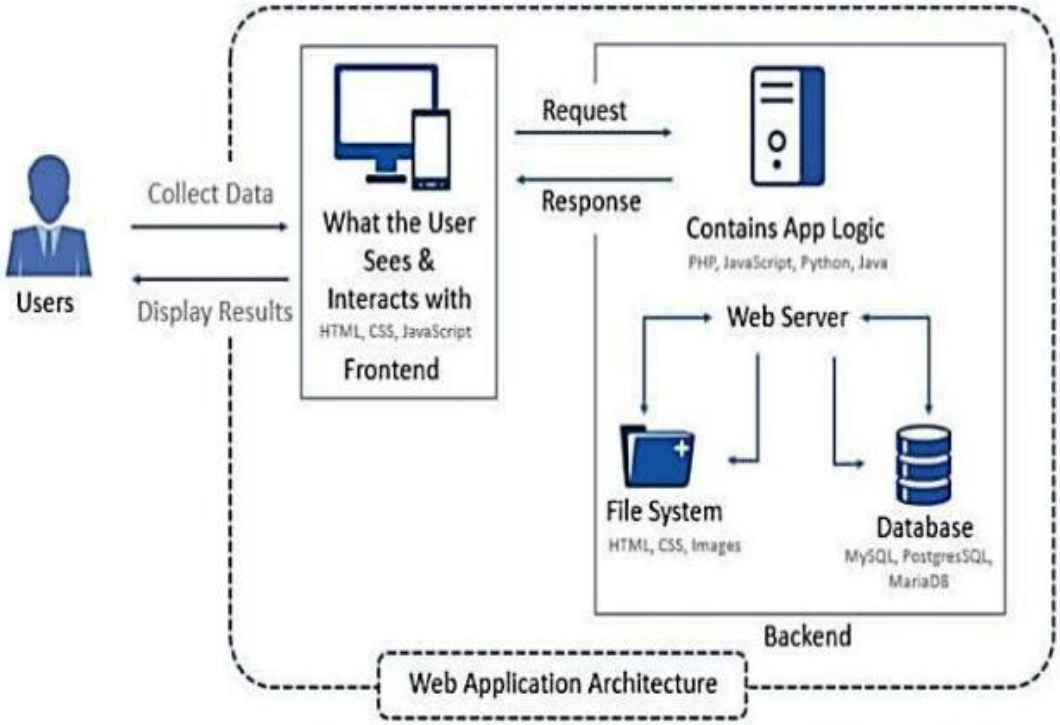


Fig-1 : System Architecture

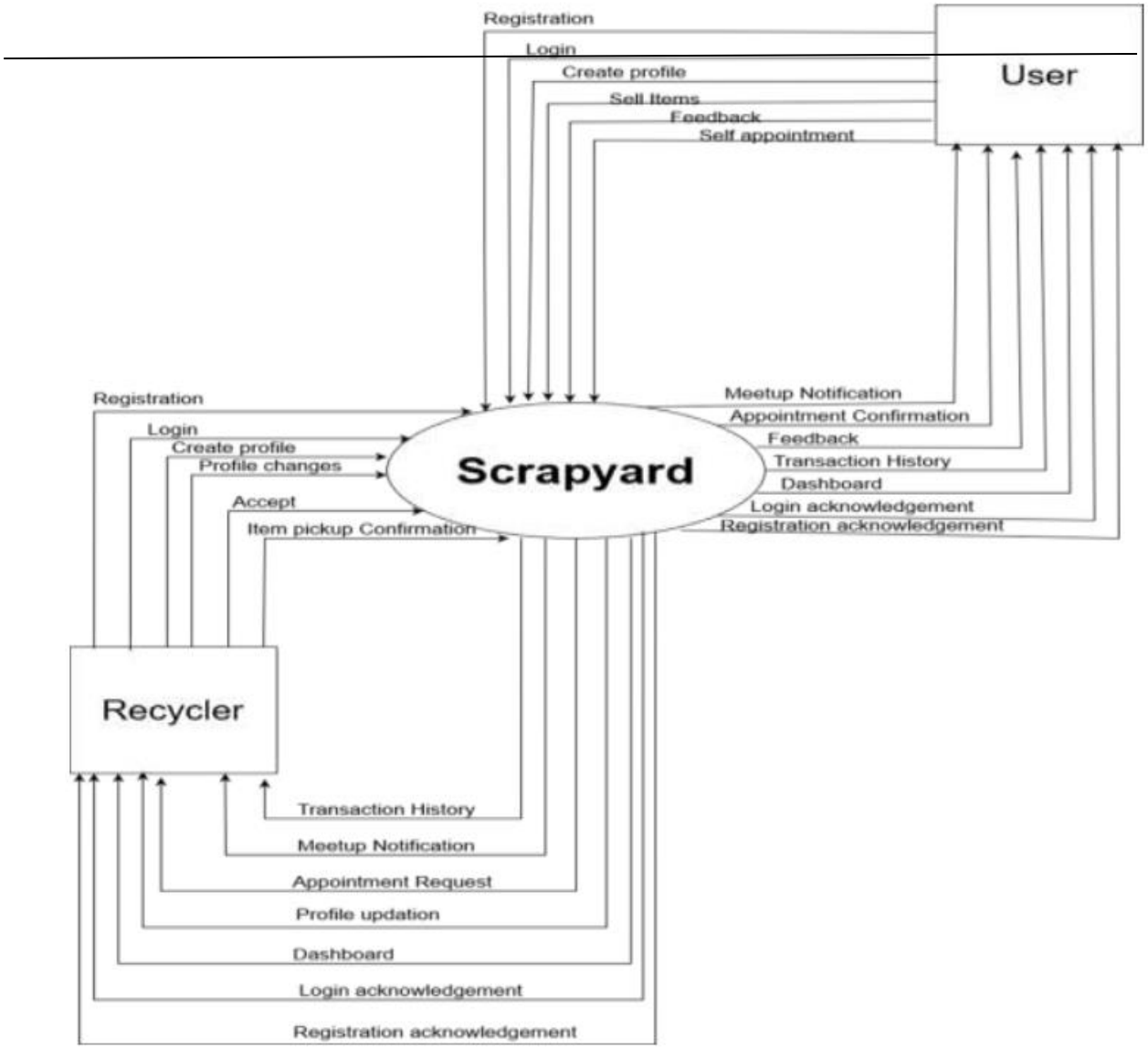
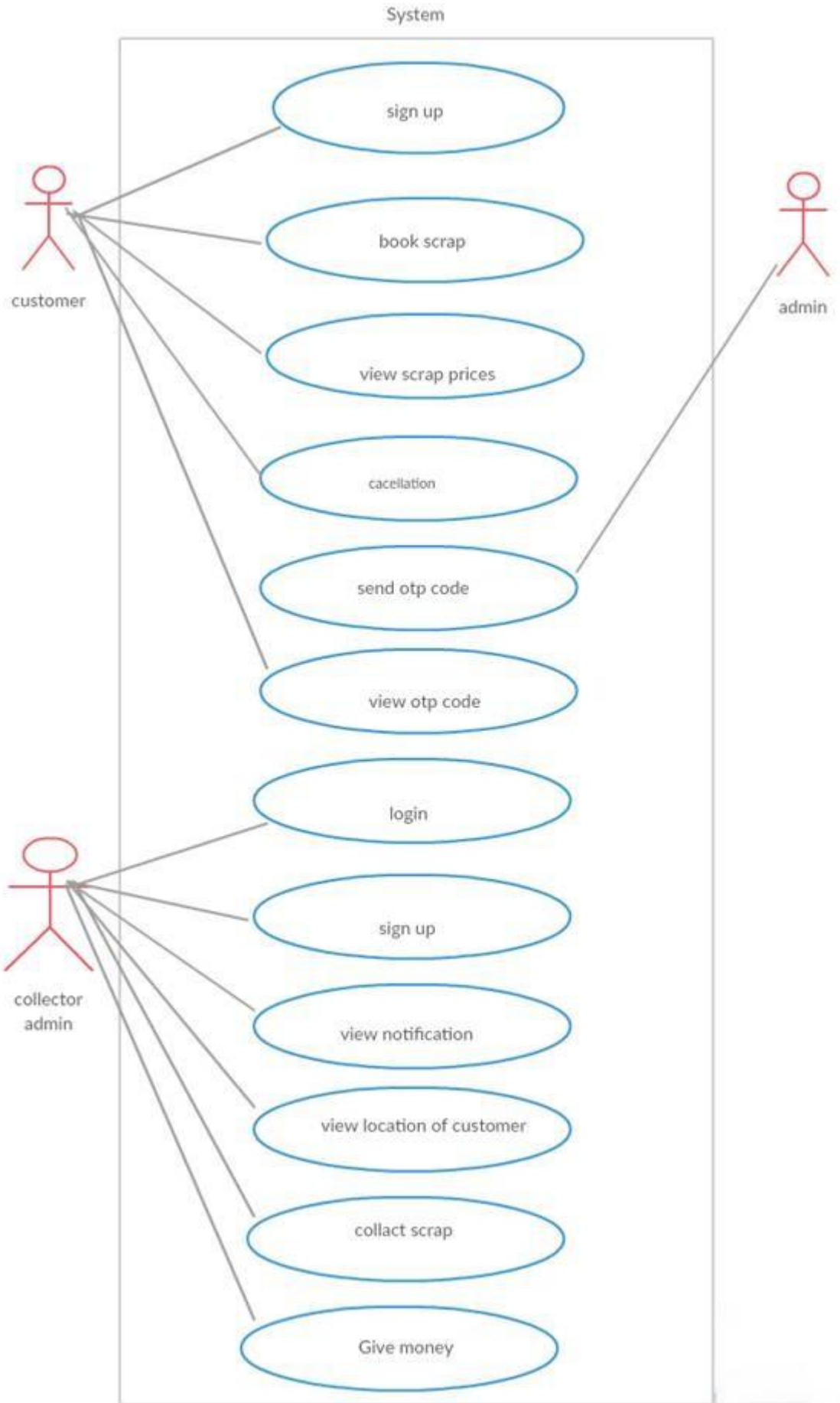


Fig-2 : Block Diagram

Fig-3:UseCase-Diagram:


System
sign up
book scrap
view scrap prices
cacellation
send otp code
view otp code
login
sign up
view notification
view location of customer
collact scrap
Give money
customer
admin
collector
admin

•

FEASIBILITY STUDY

A feasibility study for the project on online scrap dealers involves a comprehensive assessment of various factors to determine its practicality and viability. Firstly, the technical feasibility aspect evaluates the technological requirements and capabilities necessary for developing the online platform, including hardware, software, and infrastructure. Market feasibility involves researching the demand for such platforms among scrap generators and dealers, analyzing competitors, and understanding industry trends. Financial feasibility entails estimating costs, forecasting revenues, and conducting a cost-benefit analysis to determine the project's financial viability. Legal and regulatory feasibility examines compliance with laws and regulations governing scrap trading, data privacy, and online transactions. Operational feasibility assesses the practicality of managing the platform's processes, scalability, and potential risks. Finally, social and environmental feasibility considers the project's impacts on sustainability, waste reduction, and stakeholders' social and environmental objectives. The findings of the feasibility study inform decision-making about whether to proceed with the project, refine its scope, or explore alternative approaches.

REQUIREMENT ANALYSIS

Requirement analysis for the online scrap dealers project involves gathering, prioritizing, and documenting both functional and non-functional requirements. This includes conducting stakeholder interviews and workshops to capture user stories and use cases, prioritizing requirements based on importance and urgency, and defining detailed functional specifications for core features such as scrap listing, bidding, and transaction management. Non-functional requirements, such as performance, security, and scalability, are also identified and specified to ensure the system meets quality standards. Requirements are validated with stakeholders through reviews and feedback sessions, and changes are managed through a formal change control process. Ultimately, the requirement analysis process ensures that the project team has a clear understanding of what needs to be built and that the system meets the needs and expectations of its users and stakeholders. By gathering requirements through stakeholder engagement and use case analysis, the project team identifies essential features like user authentication, scrap listing, bidding mechanisms, and transaction management. Non-functional requirements such as system performance, security measures, and usability standards are also delineated to guarantee an efficient, secure, and user-friendly platform.

TESTING

TESTING : Software testing is defined as an activity to check whether the actual results match the expected results and to ensure that the software system is Defect free. It involves execution of a software component or system component to evaluate one or more properties of interest. Software testing also helps to identify errors, gaps or missing requirements in contrary to the actual requirements. It can be either done manually or using automated tools. Some prefer saying Software testing as a White Box and Black Box Testing. In simple terms, Software Testing means Verification of Application Under Test (AUT).

DIFFERENT TYPES OF SOFTWARE TESTING:

FUNCTIONAL TESTING TYPES INCLUDE: Unit Testing Integration Testing System Testing Sanity Testing Smoke Testing Interface Testing Regression Testing Beta/Acceptance Testing

NON-FUNCTIONAL TESTING TYEP INCLUDE: Performance Testing Load Testing Stress Testing Volume Testing Security Testing Compatibility Testing Install Testing Recovery Testing Reliability Testing Usability Testing Compliance Testing Localization Testing

TESTING METHODS:

WHITE BOX TESTING White box testing is the detailed investigation of internal logic and structure of the code. White box testing is also called glass testing or open box testing. To perform white box testing on an application, a tester needs to know the internal working of the code. The need to look inside the code and find out which unit/chunk of the code is behaving inappropriately.

BLACK BOX TESTING The technique of testing without any knowledge of the interior working of the application is called black box testing. The tester is oblivious to the system architecture and does not have access to the source code. Typically, while performing a black box test, a tester will interact with the system's user interface by

providing inputs and examining outputs without knowing how and where the inputs are worked upon.

GREY BOX TESTING Grey box testing is technique to test the application with having a limited knowledge of the internal working of an application. In software testing, the phrase the more you know, the better carrier a lot of weight while testing an application.

WHY TESTING IS IMPORTANT Testing is important since it discovers defects/bugs before the delivery to the client, which guarantees the quality of the software. It makes the software more reliable and easier to use. Thoroughly tested software ensures reliable and high-performance software operation. Testing is important because software bugs can be expensive or even dangerous. Software bugs can potentially cause monetary and human loss.

TESTING DONE FOR PROJECT We have implemented manual, functional and usability testing for this web application to ensure decent user experience. Here is the list of covered tested items:

MANUAL TESTING INCLUDE: Running the website and validation of all tabs are performed before submission of the project

FUNCTIONAL TESTING INCLUDE: This is used to check if our application is as per our intended idea as well as the functional requirements, we charted out for it in our developmental plan. Web based Testing Activities includes: Test all links in your webpages are working correctly and make sure there are no broken links. Links to be checked will include – Outgoing links Internal links Anchor Links Mail To Links Test Forms are working as expected. This will include- Scripting checks on the form are working as expected. For example- if a user does not fill a mandatory field in a form an error message is shown. Check default values are being populated Once submitted, the data in the forms is submitted to a live database or is linked to a working email address Forms are optimally formatted for better readability

FUTURE SCOPE

The future scope for the online scrap dealers project holds significant potential for expansion and innovation. One avenue for growth lies in the integration of emerging technologies such as artificial intelligence (AI) and machine learning (ML) to enhance various aspects of the platform. AI algorithms could be employed for advanced data analytics, enabling predictive modeling for scrap availability and pricing trends. Additionally, ML algorithms could facilitate more accurate matching between scrap generators and dealers based on historical transaction data and user preferences. Furthermore, the platform could explore opportunities for geographic expansion, catering to a broader market of scrap generators and dealers across different regions or even internationally. Collaboration with recycling facilities and waste management organizations could also be pursued to create a more comprehensive ecosystem for sustainable scrap management, incorporating features for material recovery, recycling incentives, and environmental impact assessment. Moreover, continuous improvement and innovation in user experience design, mobile accessibility, and community engagement features could further enhance the platform's competitiveness and user adoption. Ultimately, the future scope for the online scrap dealers project is vast, offering opportunities for technological advancement, market expansion, and greater sustainability impact in the scrap management industry.

CONCLUSION

In conclusion, the online scrap dealers project presents a transformative solution to modernize and optimize the scrap management industry. Through the development of an innovative online platform, the project aims to streamline the process of scrap material exchange, connecting scrap generators with reputable dealers while promoting sustainability and efficiency. The comprehensive feasibility study underscores the project's viability, supported by thorough requirement analysis and a clear understanding of user needs and market dynamics. Looking ahead, the future scope for the project is promising, with opportunities for technological integration, geographic expansion, and collaboration with industry stakeholders to create a more sustainable and environmentally conscious scrap management ecosystem. By leveraging emerging technologies, continuous innovation, and a commitment to meeting stakeholder expectations, the online scrap dealers project is poised to make a significant impact in reshaping the scrap management landscape, fostering economic growth, and contributing to global sustainability efforts.

REFERENCES

Liu, H., Wang, Y., & Zhao, H. (2018). Evolution of scrap management practices: A review. Waste Management, 78, 78-89.

Zhang, Q., Li, J., & Chen, Y. (2020). Digitalization and technological innovation in scrap management: A case study of online platforms. Journal of Cleaner Production, 258, 120658.

Global Scrap Metal Recycling Market Report 2023. (2019). Market Research Future.

The Circular Economy for Scrap Management: Opportunities and Challenges. (2020). World Economic Forum.

Institute of Scrap Recycling Industries (ISRI). (https://www.isri.org/)

ScrapMonster. (https://www.scrapmonster.com/)

Scrap Register. (https://www.scrapregister.com/)

Smith, J. (2020). Scrap Management in the Digital Age. Springer.

Green, M. (2018). The Business of Recycling: Principles and Practice. Routledge.

United States Environmental Protection Agency (EPA). (https://www.epa.gov/recycle)

KSGBS's
Bharat Ratna Indira Gandhi College of Engineering, Solapur
Approved by AICTE, New Delhi, Affiliated to DBATU, Lonare, Recognized by Govt Of Maharashtra, DTE, Mumbai

ANNEXURE

COURSE OUTCOME FOR PROJECT WORK

After completion of project work students should be able to:

CO1. Identify and formulating engineering problem addressing needs of industry & society.

CO2. Conduct investigation of engineering problem formulated by engineering sciences.

CO3. Design and develop solution(s) for engineering problem with due consideration to

CO4. Work as individual and in team for communicating and managing the project work and its finances.

CO5. Create, select and apply modern tools for investigating, designing and developing solutions to engineering problem.

CO6. Develop ability for independent & lifelong learning.

CO7. Apply professional ethics while identifying the problem, investigating the problem,

Designing a solution to the problem, working as an individual or team for communicating and managing the project work and its finances.

CO-PO MAPPING FOR PROJECT

Course Outcomes(COs)	
Students will able to:	
CO1	Identify and formulate engineering problem addressing needs of industry and society.
CO2	Conduct investigations of the engineering problem formulated by using engineering sciences.
CO3	Design and develop solutions for engineering problem with due consideration to public health, safety, culture, society, environment and sustainability.
CO4	Create, select and apply modern tools of investigating, designing and developing solutions to engineering problem.
CO5	Work as individual and in team for communicating and managing the project work and its finances.
CO6	Apply professional ethics while identifying the problem, investigating the problem, designing a solution to the problem, working as an individual or team for communicating and managing the project work and its finances
CO7	Develop ability for independent & lifelong learning.

Sr No.	Program Outcomes(Pos)
1	**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization in the solution of complex engineering problems.
2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3	**Design/development of solutions:** Design solution for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental consideration.
4	**Conduct investigation of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusion.
5	**Modern tool usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6	**The engineering and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental context, and demonstrate the knowledge of and need for sustainable development.
8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	**Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.
10	**Communication:** Communication effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instruction.