Rural Job Hub: An application to Allot Jobs for Labourers in Rural Areas

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***Abstract*—The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), also known as Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) provides a legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manual work at the statutory minimum wage. This act was introduced with an aim of improving the purchasing power of the rural people, primarily semi or un-skilled work to people living below poverty line in rural India. It attempts to bridge the gap between the rich and poor in the country. Rozgar sewaks are recruited by the Ministry of Rural Development and allocated to panchayats, to work with panchayat heads to help people file applications for job cards and to register their demand for work. They also prepare work plans and allocate work to those who demand it. This app aims to streamline MGNREGA implementation by simplifying job demand registration, ensuring timely wage payments, and improving data-driven governance. This paper presents the design and development of a digital application aimed at enhancing the implementation and transparency of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).**

***Index Terms*—Rural Employment, Unskilled manual work, Digital Application, Social Security, Sustainable Rural Development, Public Work Scheme, Rozgar Sewak.**

1.INTRODUCTION

Rural employment is a critical factor in ensuring economic stability and social security for millions of people in India. The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was introduced as a landmark policy to provide wage employment opportunities to rural households while promoting the creation of sustainable assets like roads, irrigation facilities, and water conservation structures. However, despite its strong legal framework, the implementation of MGNREGA faces several challenges, including delayed wage payments, fraudulent practices, lack of awareness, and complex application procedures.

One of the major difficulties rural workers faces is navigating the bureaucratic hurdles involved in obtaining job cards and demanding work. Many labourers lack access to information about the scheme and are often dependent on intermediaries, leading to manipulation, delays, and corruption. Similarly, Rozgar Sewaks and Panchayat officials handling MGNREGA implementation at the grassroots level face heavy workloads due to the manual processing of job demands, attendance tracking, and wage disbursement.

To overcome these inefficiencies, the Android application is introduced as a technology-driven solution that automates the entire job allocation and wage distribution process under MGNREGA. The application provides a paperless, transparent, and efficient system where labourers can register, apply for jobs, track their job status, and receive payments seamlessly.

The app also benefits Panchayat Pradhans and Rozgar Sewaks by enabling them to efficiently manage labour registrations, approve job cards, assign work, mark attendance using QR code scanning, and ensure timely wage payments.

By integrating technology and governance, Kayaka Bandhu not only enhances accountability and efficiency but also empowers rural workers by giving them direct control over their employment rights. The app reduces dependency on middlemen, eliminates fraudulent practices, and ensures that the benefits of MGNREGA reach the right people without delays.

This initiative marks a significant step forward in digital governance, ensuring that rural employment

programs are implemented effectively while improving the quality of life for millions of workers across India.

2. SCOPE

This research explores the development and impact of an Android application designed to enhance the implementation of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in rural India. The application streamlines job demand registration and wage disbursement for labourers, improving accessibility and livelihood security. It assists Rozgar Sewaks in managing administrative duties more efficiently, while enabling Gram Panchayat officials to access real-time data for better monitoring. Government authorities use the app for performance analysis and policy-making, and civil society organizations leverage it to advocate for workers' rights. By promoting transparency, accountability, and timely service delivery, the application supports inclusive growth and strengthens rural governance structures under MGNREGA.

3. OBJECTIVE

The project automates Rozgar Sewak duties in MGNREGA, improving efficiency in job registration, work allocation, and payments. It ensures timely online wage disbursal to reduce delays and corruption. Paperless job demand registration simplifies access for rural workers. Real-time data improves transparency, monitoring, and governance. The app empowers rural communities by increasing accessibility to employment and supporting inclusive growth.

4. RELATED WORKS

1. Gram Samvaad: The Gram Samvaad app, developed by NIC-MoRD Group in collaboration with the Ministry of Rural Development, is a transformative tool aimed at empowering rural citizens by providing seamless access to vital information. Designed as a citizen-centric mobile application, it serves as for a single-window platform information at the Gram Panchayat level, covering key rural development programs. It is a significant step toward empowering rural communities, fostering awareness, and improving governance. https://play.google.com/store/apps/details?id=com.nic.gramsamvaad

2. Kaushal Panjee – Skill register: Kaushal Panjee has been conceptualized and implemented as a web & mobile based mobilization tool for registration of beneficiaries for Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) RSETI programs. This digital initiative, in collaboration with IIT Madras and NABARD, aims to provide centralized platform for delivering standardized training modules, real-time monitoring, and consistent access to learning resources a for trainers, trainees, and assessors across RSETIs.
https://play.google.com/store/apps/details?id=com.nic.shakti.ddu_gky&hl=en

3. Janmanrega: The Ministry of Rural Development (MoRD) launched 'Janmanrega' – a Citizen-centric Mobile Application (CCMA). Janmanrega has been developed with collaboration between the MoRD, National Informatics Centre (NIC) and National Remote Sensing Centre (NRSC, Hyderabad). Janmanrega is an instrument for information flow to and from ground-level, which will connect citizens with the system. An initiative towards good governance, Janmanrega is an interface to improve quality of public services.
https://play.google.com/store/apps/details?id=nic.hp.ccmgnrega&hl=en

4. Mera gaon: Mera Gaon is a hyperlocal and private hub for villages across the length and breadth of the country in where 1B rural user can interact with each other regarding matters concerning the local community. All in one rural platform to stay connected with your village and the wider rural community. Users can effortlessly engage with their entire village network on a single app, fostering a sense of close-knit connectivity even in the digital realm.
https://meragaonapp.com/careers

5. Area Officer: The Ministry has launched the Area Officer Monitoring Visit App for the purpose of real-time inspection and evidence-based reporting of RD schemes. This app will facilitate the officials of the state or UT to record their field visit findings online. The app will also allow the officials to record time-stamped and geotagged photographs for all the

schemes launched by the Department of Rural Development. This app will help in the development of hassle-free reporting in the field visits. The provision to view the field visit outcome report by senior officials is also available in the App https://play.google.com/store/apps/details?id=com.nic.areaofficer_app&hl=en_IN

5.EXISTING METHODOLOGY

Existing digital solutions for the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) primarily focus on specific aspects of the program's implementation. For instance, some applications are designed to monitor worker attendance by capturing real-time data through Geotagged photographs, aiming to enhance transparency and reduce absenteeism. However, these applications often face challenges such as technical glitches, unreliable internet connectivity in rural areas, and difficulties in ensuring timely uploads, which can lead to discrepancies in attendance records and delayed wage payments. Additionally, the mandatory use of such applications has sometimes resulted in unintended exclusions of workers who are not familiar with or do not have access to the required technology.

6. PROPOSED METHODOLOGY

The proposed methodology involves developing an Android application to automate the MGNREGA process, from job registration to wage disbursement. It will provide a user-friendly platform for labourers to register, track job status, and receive payments directly. QR code-based attendance will ensure accurate record-keeping and reduce technical errors. The app will also streamline tasks for Rozgar Sewaks and Panchayat officials, reducing delays. Ultimately, the solution aims to enhance transparency and efficiency in MGNREGA implementation.

6.1 Advantages of proposed system

1. Empowerment of Rural Laborers: It enables labourers to independently register, track their job status, and receive payments, reducing dependency on intermediaries.
2. Accuracy and Transparency: QR code-based attendance ensures accurate record-keeping and reduces errors, fostering greater transparency.
3. Efficiency in Administration: Streamlining tasks for Rozgar Sewaks and Panchayat officials reduces bureaucratic delays and enhances overall operational efficiency.
4. Timely Wage Disbursement: The automation of the wage disbursement process ensures timely payments to workers, improving financial stability.
5. Reduced Corruption: By minimizing human intervention and increasing transparency, the system helps reduce corruption in the implementation of MGNREGA.

7. SYSTEM DESIGN

The system design of the proposed MGNREGA Android application is structured to ensure automation, transparency, and ease of use for both workers and administrators. At the forefront is the User Interface Layer, offering intuitive and role-specific dashboards for rural labourers, Rozgar Sewaks, and Panchayat officials. Laborers can register for jobs, view status updates, mark attendance via QR code, and monitor payment progress. Officials have access to modules for job verification, attendance approval, and wage processing.

The Application Layer serves as the control unit, handling data flow, user authentication, session management, and logic execution. It ensures smooth interaction between the interface and core functions. A core component of the system is the QR Code Attendance Module, which generates unique, daily QR codes scanned by labourers on-site to record attendance. The module uses device GPS and timestamping to prevent manipulation and ensure real-time tracking.

The Backend Server is responsible for processing requests, storing data, and communicating with government systems through secure APIs. This enables automatic wage calculation and disbursement based on verified attendance. Lastly, the Database Layer securely holds user profiles, job applications, attendance logs, and payment records. The system is designed to be scalable and secure, supporting multiple users concurrently while maintaining data integrity and transparency throughout the MGNREGA workflow.

7.1. System Architecture

A system architecture is the conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviours of the system.

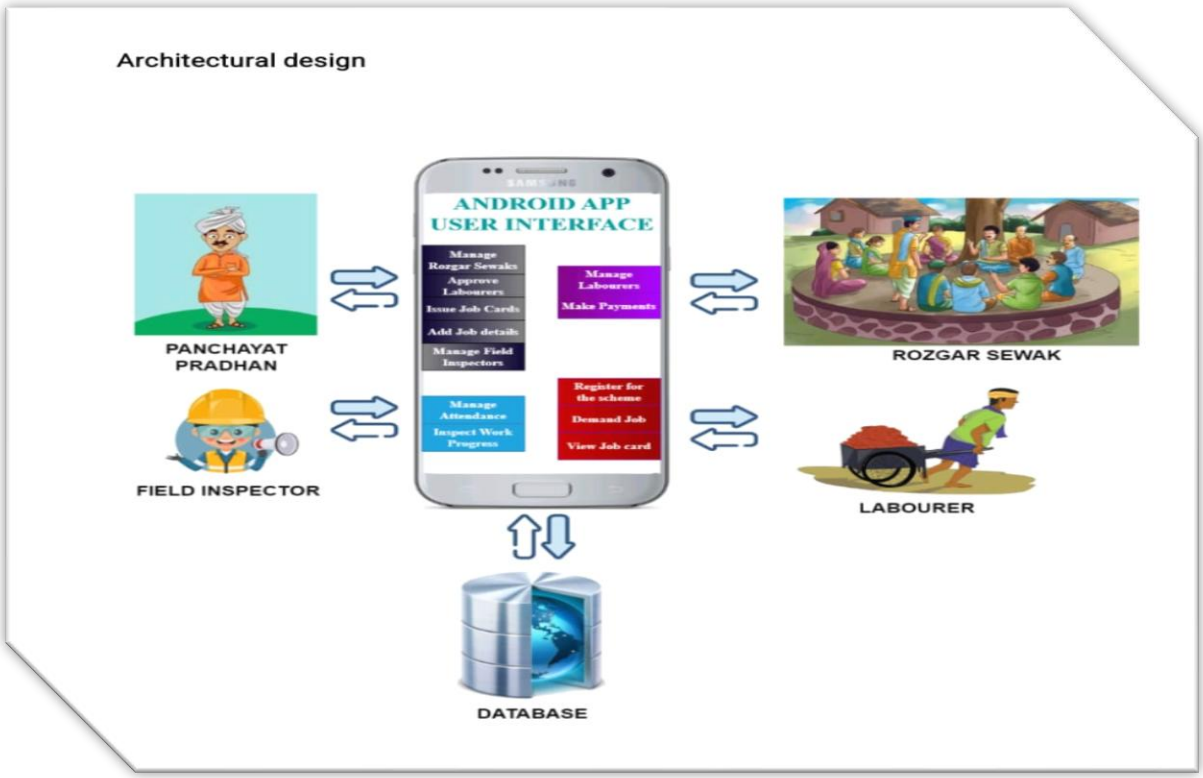


Fig.1. Architecture Design

The architectural design of the proposed MGNREGA Android application is structured to ensure seamless interaction among all stakeholders involved in the implementation of the scheme. At the core of this system lies the Android application's user interface, which serves as the centralized platform through which various users—including laborers, Rozgar Sewaks, Panchayat Pradhans, and Field Inspectors—interact with the system. Each user group is provided with specific functionalities tailored to their role, ensuring clarity, accountability, and ease of operation.

7.2. Database

A database is an organized collection of data that allows efficient storage, retrieval, and management of information. It serves as the backbone for applications that require handling large amounts of structured data, ensuring accessibility and consistency. In the context of Android-based applications, a database plays a crucial role in storing user data, settings, and various other information that enhances the functionality of the app.

Android applications often use databases like SQLite, Room, or Firebase to manage data locally or on cloud-based servers. These databases help maintain data integrity, support offline functionality, and improve app performance by organizing information effectively. Without a database, an app would struggle to manage and retrieve data efficiently, leading to a poor user experience. By integrating a well-structured database, developers can create reliable and responsive applications that meet user needs effortlessly

In this application all operations performed by users are integrated with a centralized Database that stores crucial data such as user profiles, job demands, attendance records, job progress, and payment status. This centralized data management ensures real-time synchronization and data consistency across all users

and devices. The architectural design promotes transparency, reduces bureaucratic delays, and builds an efficient workflow that supports accurate record-keeping and timely wage disbursement, thereby improving the overall effectiveness of MGNREGA implementation.

7.3. Goals

1. Visualize System Structure: Represent the architecture and relationships between different system components such as users (laborers, officials), modules (attendance, payment), and the database.
2. Define User Roles and Interactions: Clearly show the roles of Panchayat Pradhan, Rozgar Sewak, Field Inspector, and Labourer, along with their specific interactions with the application.
3. Model System Functionality: Capture all key functionalities such as job registration, attendance management, wage processing, and work monitoring using use case diagrams.
4. Illustrate Data Flow and Processes: Show how data moves between users, the application interface, and the database, ensuring transparency and understanding of backend operations.
5. Support Development and Documentation: Provide a reference for developers and stakeholders that aids in system development, testing, maintenance, and future scalability.

8. MODULES

8.1 Panchayat Pradhan

1. Login: The Panchayat Pradhan can login with a predefined username and password. After login there is provision to change the password.
2. Approve Labourer: On Registration, Panchayat Pradhan can approve the Labourer
3. Issue Job Card: Panchayat Pradhan can issue a job card to the labourers. This job card will be stored in the form of QR code.
4. Assign Rozgar Sewak: Panchayat Pradhan can assign Rozgar Sewaks to his Gram Panchayat. He will add all the details of the Rozgar Sewak along with his login credentials. These credentials will be sent in the form of an SMS to the Rozgar Sewak.
5. Add Job Details: Panchayat Pradhan can add the details of the job.
6. Update Complaint Status: Panchayat Pradhan can update the details of complaint posted by Labourer

8.2 Rozgar Sewak

1. Login: Rozgar Sewak can login with the username and password provided by the Panchayat. After login there is provision to change the password.
2. Register Labourer: Rozgar Sewak can register the details of a labourer.
3. Allot Labourers: Rozgar Sewaks can allot labourers for a particular job. Labourer will receive a SMS once he is allotted a job.
4. Make payment: Rozgar Sewak can make payments to the labourers. On making a payment, the labourer will receive an SMS about the payment on his registered mobile number.

8.3 Field Inspector

1.Login: Field Inspectors can log in using their unique credentials.
2. Mark attendance: Field Inspector has an option to scan the Job Card QR Code of the labourers on-site to verify their presence. This will give him all the details of the labourer. He can then mark attendance.
3. Inspect Work Progress: View assigned job details and allocated workers.
4. Raise Issues & Feedback: Field Inspectors can raise issues regarding improper work execution.
Submit feedback for improvement of workflow and processes.

8.4 Labourer

1. Registration: A Labourer can register with his details to access the features of the app.
2. Login: Labourer can login to the app using the credentials provided during login.
3. Register for the scheme: On successful login, he can register for the scheme.
4. Demand for Job: On approval by Panchayat Pradhan, a labourer can demand for job.
5. View Job Card: Labourer can view his job card and all his details.
6. Post Complaint: Labourers can post complaints regarding any issue and Panchayat Pradhan can update the status of those complaints.

9. SOFTWARE TESTING:

9.1 Test cases

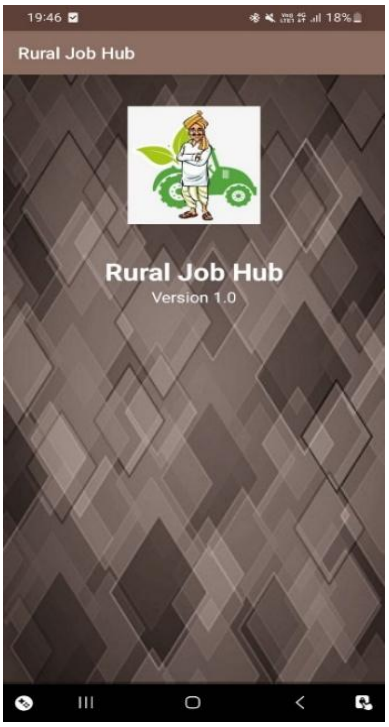
Functional Test Cases:

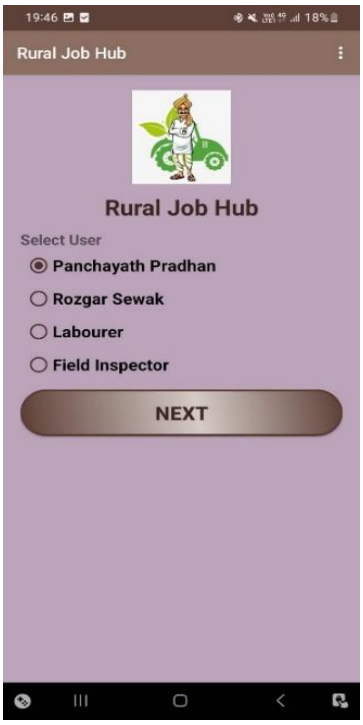
Test Case Id	Test Case Name	Test Case Description	Test Steps				Test Status P/F
			Steps	I/P Given	Expected O/P	Actual O/P	
TC01	Pre-defined password for Admin	To verify that the admin can login with predefined username and password	In the Admin login screen, enter username and password as admin	Username: admin Password: admin	Login successful	Login successful	Pass
TC02	Registration	To verify that the User has registered by entering valid detail	Enter all valid User details in User Registration Screen	Valid details	Registered successfully	Registered successfully	Pass
	Registration	To verify that the User has registered by entering valid detail	Enter invalid User details in User Registration Screen	Invalid details	Registration fails. Appropriate error message is displayed.	Registration fails. Appropriate error message is displayed for the invalid or missing fields.	Pass
TC03	Login	To verify that the user has entered valid username and password	Login with valid user name and password	Valid user name and password	Login successful.	Login successful. User is taken to the home screen	Pass
	Login	To verify that the user has entered valid username and password	Login with invalid user name and password	Invalid user name and password	Login unsuccessful. Appropriate error message is displayed	Login unsuccessful. Appropriate error message is displayed	Pass

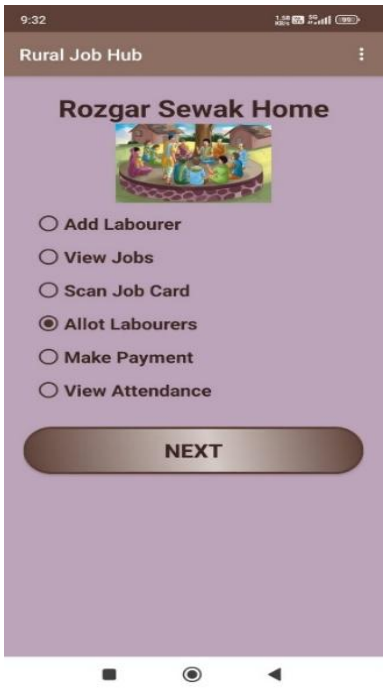
TC04	Approve Service Provider	Admin can approve registered Service Provider	Login as Admin. Select approve Service Provider	Valid details	Service Provider is approved successfully	Service Provider is approved successfully	Pass
TC05	View Service Providers	Admin can View Service Provider list/details	Login as Admin. Go to View Service Provider button	Tap on View button	List/Details of Service Provider is displayed successfully	List/Details of Service Provider is displayed successfully	Pass
TC06	View Users	Admin can view User list/details	Login as Admin. Select View Users option.	Login as Admin. Select View Users option	List/Details of Users is displayed successfully	List/Details of Users is displayed successfully	Pass
TC07	Add Service Details	Service Providers can add the details of service	Login as Service Provider. Select Add Service Details Option	Valid details	Service Details added successfully	Service Details added successfully	Pass
TC 8	Book Service Provider	User can book Service Provider	Login as User.Select View Service Providers Option	Book button is clicked	Service Provider is booked successfully	Service Provider is booked successfully	Pass
TC 9	View Profile	User can view their profile	Login as User. Select View Profile Option	Login as User. Select View Profile Option	Profile details displayed successfully	Profile details displayed successfully	Pass
TC 12	Logout Menu	In case any of the user selects logout menu option, they should be redirected	Select logout menu option	Logout option is selected from the options menu	User is taken to user selection screen	User is taken to user selection screen	Pass

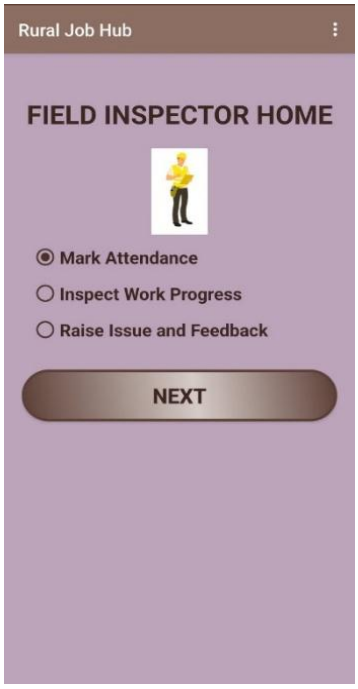
		back to user selection screen					

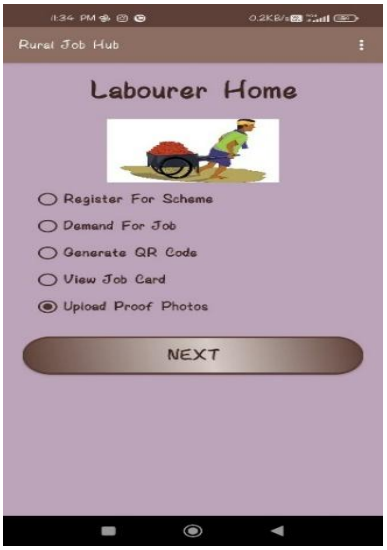
10. RESULTS



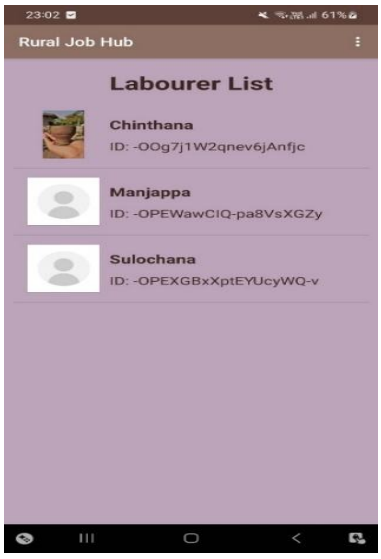






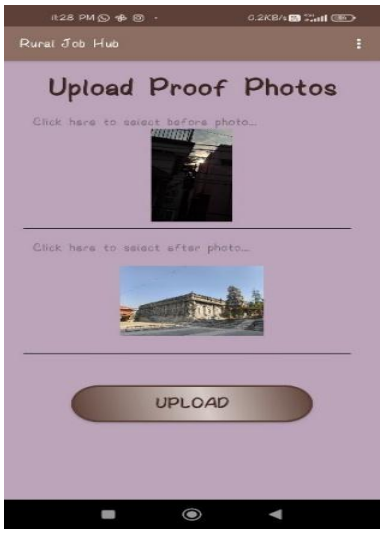

Rural Job Hub
Labourer Home
Register For Scheme
Demand For Job
Generate QR Code
View Job Card
Upload Proof Photos
NEXT


Rural Job Hub
Job List
Title: school construction
Required Labourers: 20
Duration: 30
Funds: ₹20000000
Description: carry bricks
Title: road construction
Required Labourers: 25
Duration: 30
Funds: ₹200000
Description: needs to construct road
Title: Dug-out farm ponds
Required Labourers: 15
Duration: 10
Funds: ₹300000
Description: construction of farm ponds for irrigation
Title: Rural Connectivity


Rural Job Hub
Labourer List
Chinthana
ID: -OOg7j1W2qnev6jAnfjc
Manjappa
ID: -OPEWawCIQ-pa8VsXGZy
Sulochana
ID: -OPEXGBxXptEYUcyWQ-v


Mark Attendance
Select Job:
school construction
road construction
Dug-out farm ponds
Rural Connectivity
UPDATE


Rural Job Hub
Job Card Details
Labourer abc
Gender: Male
Age 39
Mobile 8618587269
Aadhar 012582398761
BPL Card Number 64964964
Voter ID hsue765765
Panchayath mysore
Bank Name sbi
Account Number 548348458
IFSC sbi6e76e672
Job No Job Allotted


Rural Job Hub
Upload Proof Photos
Click here to select before photo...
Click here to select after photo...
UPLOAD


Rural Job Hub
Job Card Details
Labourer abc
Gender: Male
Age 39
Mobile 8618587269
Aadhar 012582398761
BPL Card Number 64964964
Voter ID hsue765765
Panchayath mysore
Bank Name sbi
Account Number 548348458
IFSC sbi6e76e672
Job No Job Allotted


Rural Job Hub
Generate QR Code
GENERATE


Rural Job Hub
QR Code Details
Labourer Manjappa
Gender: Male
Age 35
Mobile 8746037048
Aadhar 123456789012
BPL Card Number 0987654321
Voter ID asdfghjklz
Bank Name SBI
Account Number 123456789012
IFSC SBIN0003130
Panchayath mysore
Job
No job allotted for this labourer
VIEW ATTENDANCE

9. CONSLUSION

This app helps in the process of procuring employment for labourers. It overcomes all the drawbacks of the existing system and provides a paperless solution for all the issues faced. Through this app we are providing a means for beneficiaries of government employment guarantee scheme to get a job card, apply for job and receive payments and also to have a communication channel with the concerned officials. The app will be useful to all the parties involved - the labourer, the Rozgar Sewak and the Panchayath Pradhan as it makes the tasks of these people simpler and automated. Also, the app helps to curb corruption and removes unwanted interference of middlemen.

10. FUTURE ENHANCEMNET

Looking forward, future enhancements will focus on expanding functionality and improving accessibility for all stakeholders involved. Features such as real-time job availability updates, GPS-based worksite tracking, biometric authentication, and multilingual support will be introduced to make the platform more inclusive and efficient.

The app is designed to benefit laborers, Rozgar Sewaks, and Panchayath Pradhans alike by simplifying and automating key tasks such as attendance tracking, wage distribution, job assignment, and reporting. By digitizing these processes, the platform not only enhances transparency and accountability but also plays a significant role in reducing corruption and eliminating the influence of middlemen.

As the system evolves, its scalability will allow for integration with other government services and databases, paving the way for a more interconnected and responsive rural employment ecosystem.

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