INTELLIGENT ATTENDANCE SYSTEM

Ministry Name : Ministry of Rural Development

Problem Statement : MK203

Team Name : Dev_Warriors

College Code : 3124

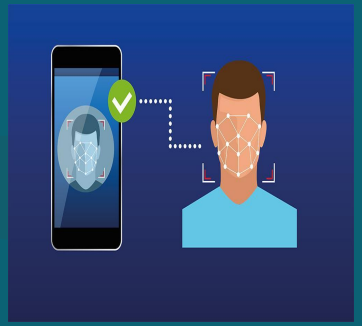
SOLUTION

Our solution comprises of an INTELLIGENT ATTENDANCE SYSTEM for combating fraudulent activities in the MGNREGA scheme.

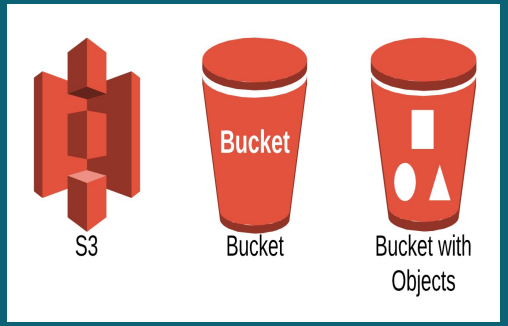
During the registration process, the image of the worker is captured and then with the help of AWS REKOGNITION API we are going to mark the attendance.

So for this we are accessing the official library of AWS which is the Boto3 and we will be passing the image in the S3 container and then we verify the image captured in the workplace with the worker's image in the S3 container,if matched the attendance is marked.

Later after 100 days of work is completed we are going to store the images in the S3 Glacier Deep Archive and can be retrieved when necessary.



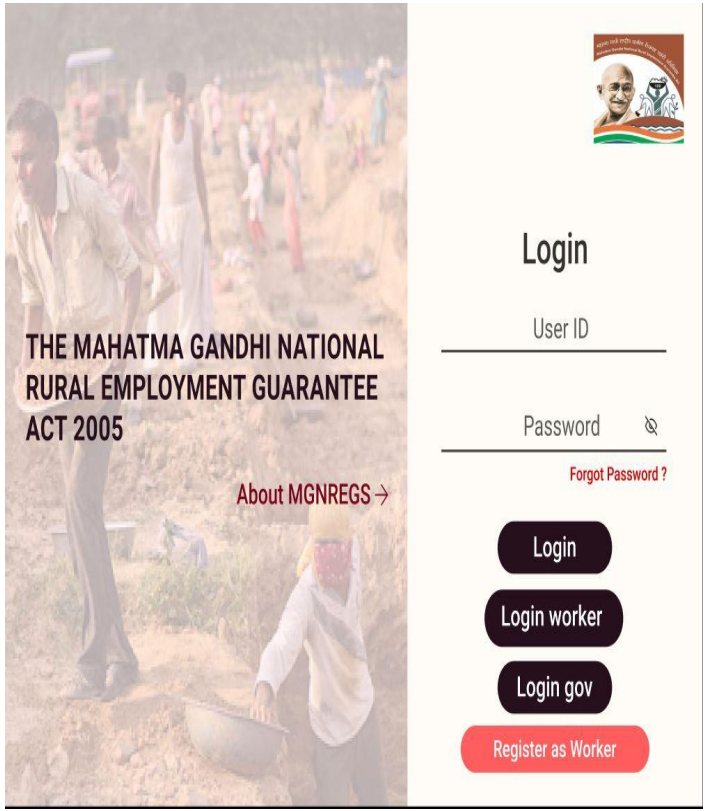
The image of the worker is captured during the registration process and while taking attendance.

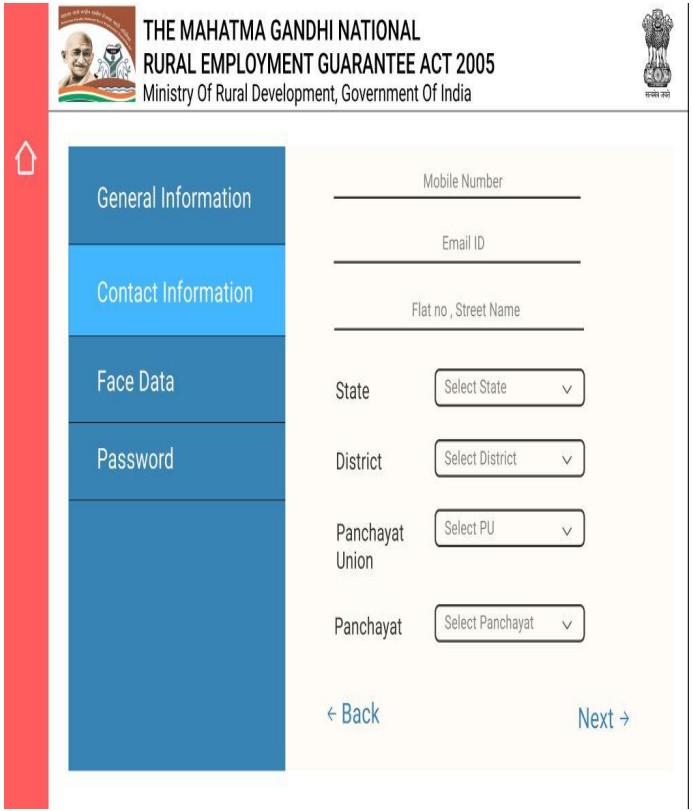


The image captured is made to store in Amazon S3 container for the entire 100 days of work.

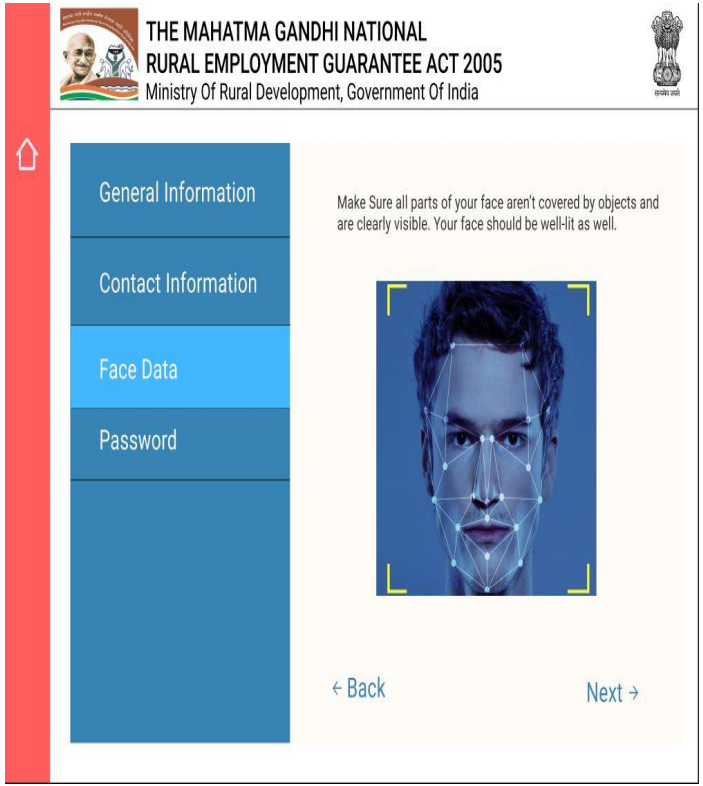
After 100 days the images are transferred to S3 Glacier Deep Archive and remain in the archive for 365 days.

Worker Login and Registration

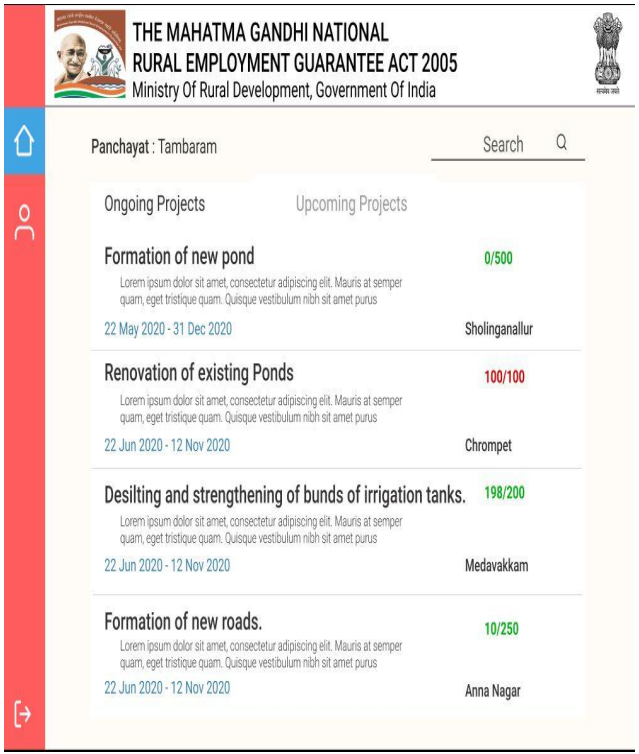


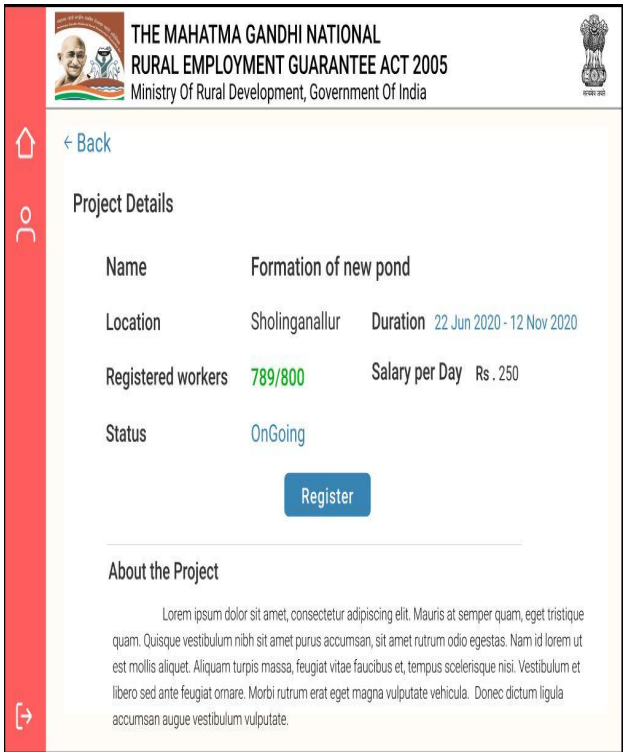


Upload Worker Image to Amazon S3

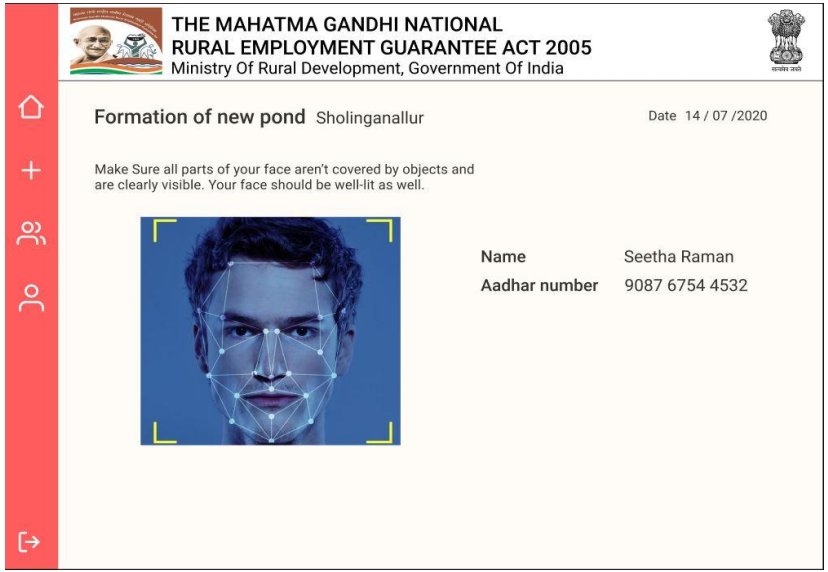


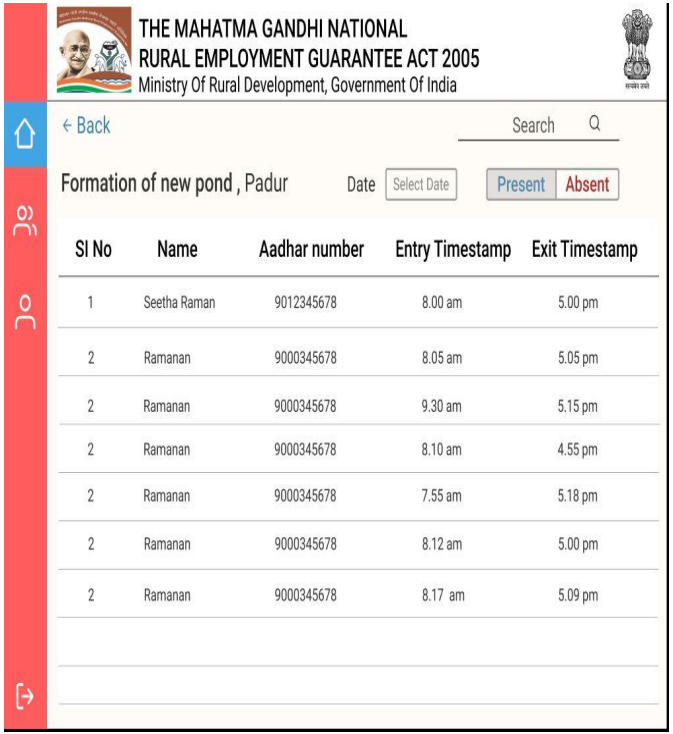
Project Details





Worker Attendance

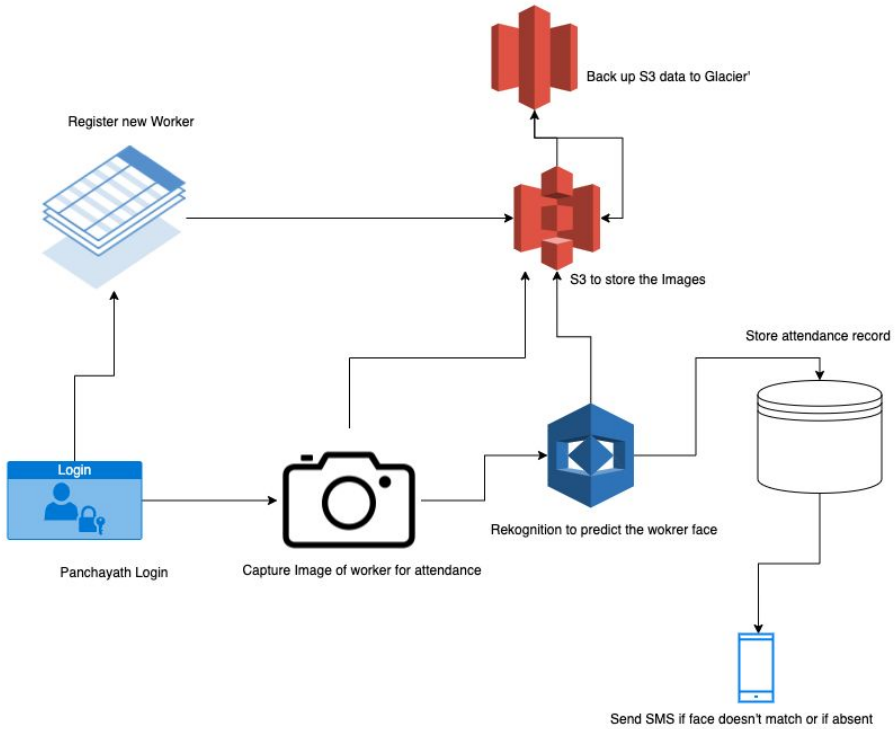




Sl No	Name	Aadhar number	Entry Timestamp	Exit Timestamp
1	Seetha Raman	9012345678	8.00 am	5.00 pm
2	Ramanan	9000345678	8.05 am	5.05 pm
2	Ramanan	9000345678	9.30 am	5.15 pm
2	Ramanan	9000345678	8.10 am	4.55 pm
2	Ramanan	9000345678	7.55 am	5.18 pm
2	Ramanan	9000345678	8.12 am	5.00 pm
2	Ramanan	9000345678	8.17 am	5.09 pm

Mocks:https://www.figma.com/proto/rc6ML40znYyhUKdpq22eOi/Sih-Final-mock?node-id=107%3A1594&scaling=scale-down

Architecture



Technology Stack

Front-end: React Js

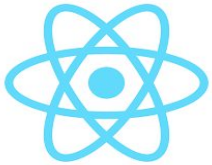
Back-end: Django

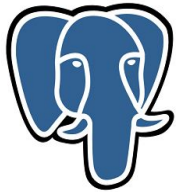
Database: PostgreSQL

Image Storage: AWS S3,

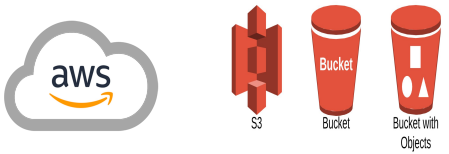
Image Archive: S3 Glacier Deep Archive

Facial Recognition: AWS Rekognition





PostgreSQL



Cost for storing the images in the AWS S3 container
First 50 TB / Month $0.023 per GB

S3 Glacier Deep Archive
All Storage / Month $0.00099 per GB

No of days	No of workers	Size in KB	Size in Gibibyte	Size in Tebibyte	Cost in Dollars	Cost in INR
1 day	100000	50,00,000	4.656	0.00454	0.3212	22.5
30 days	100000	15,00,00,000	140	0.136	3.22	241.27

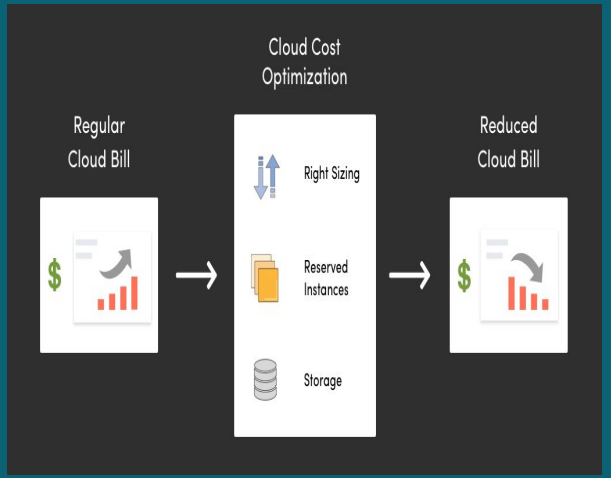
Cost for AWS S3 (100 Days) = Rs.723.81(approx)
Cost for Glacier = 140gb * 9 months * 0.00099 = $1.2474 = Rs.873(approx)

Advantages of S3

Scalability
Reliable Security
All time availability
Simplicity of Management
Low Relative Cost

Practical Benefits of AWS

Manipur is the first state government in India to transition its IT services to the cloud. The DIT's capital and operating expenses have been drastically reduced when compared to the on-premises data center costs. The DIT has experienced other benefits as well. "**Provisioning servers in the cloud is far easier than deploying a server in an on-premises data center. This migration has saved us time as well as costs,"**



Future Scope

Human Resource Requirement Prediction

The human resource requirement to complete a task issued by Gram Panchayat is determined using the Multiple Linear Regression Algorithm.

The work area dimensions and the allotted time frame for completion are taken as input parameters to calculate the number of workers required to complete the job.

The details of the required number of workers are fetched from the database.

Future Scope

Work Progress Verification

Images of the work site are captured periodically and are compared using Image Comparison to verify the amount of work completed by the workers.

Linear Regression is used to cross-check whether the predicted number of workers was sufficient to complete the work.

An analysis report will then be generated and automatically sent to the Panchayat for review.