Construction Management Tool

Problem Definition:

The construction industry is facing challenges in effectively managing project time, resulting in incomplete work and project delays. Additionally, issues such as material breakage, loss, and financial losses are prevalent due to inadequate control measures. Another challenge arises when owners or project owners are unable to be physically present at the construction site, requiring a remote solution to monitor the progress of their construction. Furthermore, companies in the construction sector struggle with managing a diverse workforce that includes permanent employees, external hires, and daily-wage workers. Currently, there is a lack of an integrated construction management system in the market to address these issues comprehensively.

Issues:

1. Inefficient project time management leading to incomplete work and project delays.
2. Material breakage, loss, and financial losses due to inadequate control measures.
3. Absence of a remote solution for owners or project stakeholders to monitor construction progress.
4. Challenges in managing a diverse workforce that includes permanent employees and external hires, including daily-wage workers.

Objectives:

1. Improve project time management to ensure timely completion of construction projects.
2. Implement control measures to minimize material breakage, loss, and financial losses.
3. Develop a remote monitoring solution for owners or project stakeholders to oversee construction progress.
4. Enhance workforce management to effectively handle a diverse workforce.

Requirements:

1. Project Time Management:
    - Scheduling and task allocation capabilities.
    - Real-time progress tracking and milestone identification.
    - Early warning system for potential delays.

2. Material Control and Loss Prevention:
    - Automated tracking of material usage.
3. Remote Construction Monitoring:
    - Live photo documentation for remote viewing.
    - Communication tools for real-time updates and decision-making.
4. Workforce Management:
    - Payroll management system.
    - Skill assessment and resource allocation capabilities.

Constraints:

1. Compatibility with existing construction processes and systems.
2. Cost-effectiveness and affordability for construction companies.
3. User-friendliness and ease of implementation.
4. Security measures to protect sensitive construction-related data.
5. Scalability to accommodate projects of varying sizes and complexities.

Construction Database Tables:

1. Project:

- project_id
- client_id
- project_name
- start_date
- end_date
- budget_id
- Nootaayo
- status

2. Client:

- client_id
- client_name
- contact_person
- phone
- license

3. Employee:

- employee_id
- employee_name
- position
- phone
- salary
- role_id

4. Payment:

- payment_id
- project_id
- client_id
- amount
- payment_method_id

5. Tasks:

- task_id
- project_id
- employee_id
- task_name
- start_date
- end_date
- status

6. Material:

- material_id
- project_id
- material_name
- quantity
- unit_price

7. Expense:

- expense_id
- project_id
- expense_type
- amount
- expense_date

8. User:

- user_id
- username
- password
- email
- role_id
- employee_id

9. Role:

- role_id
- role_name

10. Account:

- account_id
- account_name
- account_type
- balance

11. Payment Method:

- payment_method_id
- payment_method_name

12. Config Invoice:

- config_invoice_id
- rate

13. Temporary Employee:

- temporary_employee_id
- temporary_employee_name
- position
- phone

14. Budget:

- budget_id
- size
- qty
- budget
- config_invoice_id

15. Design:

- design_id
- image
- status
- amount

16. Invoice:

- invoice_id
- project_id
- client_id
- amount
- invoice_date
- status

Group A

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