Group 9

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ConstructFlow

ConstructFlow Vision Statement

ConstructFlow is a work management system for plumbing and electrical work in construction. This system provides construction project managers with a drawing tool which they could use to create a blueprint and enter work details for plumbing and electrical wiring. Furthermore, the system can be used to plan, track, and manage plumbing and electrical work in construction projects. The system enables project managers and on-site workers to collaboratively interact with digital blueprints in order to schedule work, report progress, and monitor material usage in real time.

The system is centered around construction blueprints created by a project manager. These blueprints serve as the primary workspace for both planning and execution. Managers annotate the blueprints by drawing pipelines or wiring paths and dividing the work into clearly defined sections. Each section is associated with a schedule, due date, and expected material usage. In this way, the blueprint becomes a live representation of the project rather than a static reference document.

On-site workers, such as plumbers and electricians, access the system during their work sessions. Before accessing the blueprint, workers must clock in at the correct job location, ensuring that only authorized personnel can view or modify project data. Once authenticated, workers can view their assigned sections, mark completed work directly on the blueprint, and submit the material used for each completed section.

The system automatically integrates worker updates with project scheduling and inventory management. When a section is marked as completed, the project schedule is updated to reflect the current state of the work, and inventory levels are adjusted based on the materials reported by workers. Project managers can view an up-to-date blueprint that visually distinguishes completed, in-progress, and pending sections, along with summaries of upcoming deadlines and current inventory status.

The primary users of the system are project managers in the plumbing and electrical construction sectors, who require timely and accurate information to make scheduling and procurement decisions. Secondary users include plumbers and electricians working on-site, who need a clear and efficient way to understand assigned tasks and report completed work. Certain system functions, such as inventory control and schedule management, may be restricted to managers, while the workers have access to features relevant to their assigned work.

The use of a blueprint-based plumbing and electrical management system represents a significant improvement over traditional paper-based methods and fragmented digital tools. By combining blueprint interaction, scheduling, and inventory management into a single platform, the system reduces miscommunication, minimizes manual record keeping, and improves visibility into project progress for all stakeholders.

The system will be considered successful based on three criteria. First, the ability to draw the pipelines and wiring diagrams makes it easier for project managers to create work orders compared to using other similar systems. Second, it is easier for the workers to understand their tasks compared to using other similar systems. Finally, the work gets done quicker due to the seamless work management compared to using other similar systems.

ConstructFlow: Big User Stories

Visual Construction Planning

As a project manager, I want to upload a blueprint and visually define plumbing and electrical sections, so that planning is directly tied to the actual building layout.

Priority: High   Time Estimate: 2 days

Project Sharing and Scheduling

As a manager, I want after drawing sections on blueprint for them to be automatically labelled and given status and a due date. I want users to be able to access the blueprint and see what must be done according to work assigned to them and when it is due.

Priority: Medium   Time Estimate: 3 days

Workers Completion System

As a manager, I want to view the completion status of blueprints and want to be able to see completed sections inside of it and get real time updates. It would be helpful to mark completed sections with different colours.

Priority: Medium   Time Estimate: 3 days

Historical Project Tracking

As a manager, I want to save past projects and their blueprints so that I can review previous work, compare material usage, and replicate successful plans.

Priority: Medium   Time Estimate: 3 days

ConstructFlow: Detailed User Stories

Worker Login

As a worker, I want to log in with my credentials so that I can access the sections I am assigned to.

Priority: High   Time Estimate: 3 days

Manager Login

As a manager, I want to log in with my credentials so that I can access full project controls and modify blueprints.

Priority: High   Time Estimate: 3 days

Role-Based Dashboard

The system needs to show different dashboards for managers and workers so that each user sees only what they are authorized to access.

Priority: High   Time Estimate: 4 days

Session Persistence

As a user, I want to remain logged in while using the system so that I do not have to log in repeatedly.

Priority: Low   Time Estimate: 2 days

Access Restriction

The system needs to block workers from accessing manager-only features so that project data stays secure.

Priority: High   Time Estimate: 2 days

Upload Blueprint

As a manager, I want to upload a blueprint image file so that it becomes the main workspace for the project.

Priority: High   Time Estimate: 3 days