Bridging Communication Gaps in Interior Design: A Tech-Driven Execution Management System

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Abstract

The interior design industry in India often faces significant challenges during the execution phase of various interior projects, primarily due to fragmented communication and a lack of streamlined coordination among key stakeholders such as designers, clients, and contractors. These challenges frequently lead to project delays, cost overruns, and reduced client satisfaction.

This research aims to develop a mobile application that addresses the execution challenges faced in interior design projects by enhancing communication, transparency in shared data and collaboration among all key stakeholders.

Primary discussions with various interior designers revealed that project delays and cost overruns are primarily caused by insufficient client involvement, poor communication, and a lack of coordination and clarity among various stakeholders.

The proposed mobile application addresses critical challenges faced during the execution phase of interior design projects It offers a centralized communication platform, a system for design validation through document sharing and approvals, task tracking tools, and a shared calendar to manage site visits, client meetings, material selection, and key project milestones. These features aim to enhance collaboration, transparency, and operational efficiency, potentially transforming project execution practices in the Indian interior design industry.

Keywords: Collaboration, Communication, Interior design, Mobile application, Project execution, Stakeholders.

1. Chapter- 01: Introduction to the topic

1.1. Background

- India is experiencing rapid urbanization, with over 40% of the population expected to live in urban areas by 2030. Also there are many Government initiatives like Smart Cities Missions and other initiatives are creating huge demand for modern infrastructure with Architecture, and Interior design. More people are investing in residential and office spaces, due to increased spending capacity and higher living standards.

- According to data the interior design market in India is expected to grow at a CAGR of 8-12%. And the demand for interior & Architecture as a profession in tier-2 and tier-3 city markets will see significant growth as more people have started to invest in better interiors.

- The Interior and Architecture industry required a lot of coordination amongst the Designer-Client &

Contractors that are important or involved in that particular project. Having said that in India and seeing the future, there is a need to have a proper system that can help users to communication in most efficient way.

1.2. Aim

- To manage coordination between Client, Architect/Interior Designer and Contractors smoothly on a single platform.
- To create a platform for young Architects & Interior designer for project execution system.
- Improve client's involvement in the execution process.

1.3. Objective

- Identify key communication and coordination challenges faced by Architects/interior designers, contractors, and clients during the execution of the project
- Determine whether stakeholders see value in using a single platform for design approvals, task management, and collaboration.
- Analyse how interior projects are currently managed (WhatsApp, calls, emails Excel, etc.) and what limitations those tools have.
- Explore the openness of professionals (especially contractors and designers) to adopt a new digital tool for daily project work.
- Discover what features (e.g., real-time updates, approval systems, and shared calendars) are available and are most important to each stakeholder.
- Estimate how the proposed application could improve project efficiency, reduce rework, enhance client satisfaction, and increase accountability.

1.4. Research Question

- How integration of technology can benefit the designer to stay organized, and have all the necessary updates at one place? Which could be beneficial for both client and designer.
- How does streamlining the execution methods impact the quality, cost, time efficiency and how to solve this with integration of technology?

1.5. Problem identification & Scope

- Below are the brief problems faced by different stake holders during the project execution phase

1.5.1. Architect / Interior designer

- All the young architects and interior designer don't equipped with proper technologies and information about the execution methods. At the starting of their career, it is difficult to follow or establish the methods which they can follow for their young practice.
- Architects and interior designers often rely on various 2D and 3D software for project visualization and planning. However, when it comes to executing these designs in the real world, they frequently depend on various communication channels like WhatsApp groups and email. Despite this, they still struggle to maintain a centralized record where all project-related data is stored and easily accessible by the agencies involved in the execution process. For both emerging and established designers, tracking project progress and managing communication in one place remains a significant challenge.

1.5.2. Client

- For clients, they are not able to regularly look into the updates of the projects, and that might result in compromised design execution on a site.

- Poor coordination among stakeholders often leads to poor execution, resulting in misaligned goals, misunderstandings, and errors. This lack of collaboration ultimately affects the quality of project delivery, causing inconsistencies and subpar outcomes. When decisions are not made promptly, costs escalate, and schedules are disrupted, hampering overall efficiency. Furthermore, the lack of real-time updates makes it difficult to map the current progress of the project. Without proper monitoring systems, it becomes challenging to track the live status, identify roadblocks, and make informed decisions, further impacting the project's success.

1.6. Scope

- The scope of this paper is only limited to residential interior project.
- Also this application focuses on the entry and mid-level professionals in the field of interior designing.

1.7. Hypothesis

- If interior designers, clients, and contractors use a centralized app to manage communication, approvals, and timelines, then interior projects will be executed faster, with fewer errors, better accountability, and higher client satisfaction.

2. Understanding various stakeholders involved
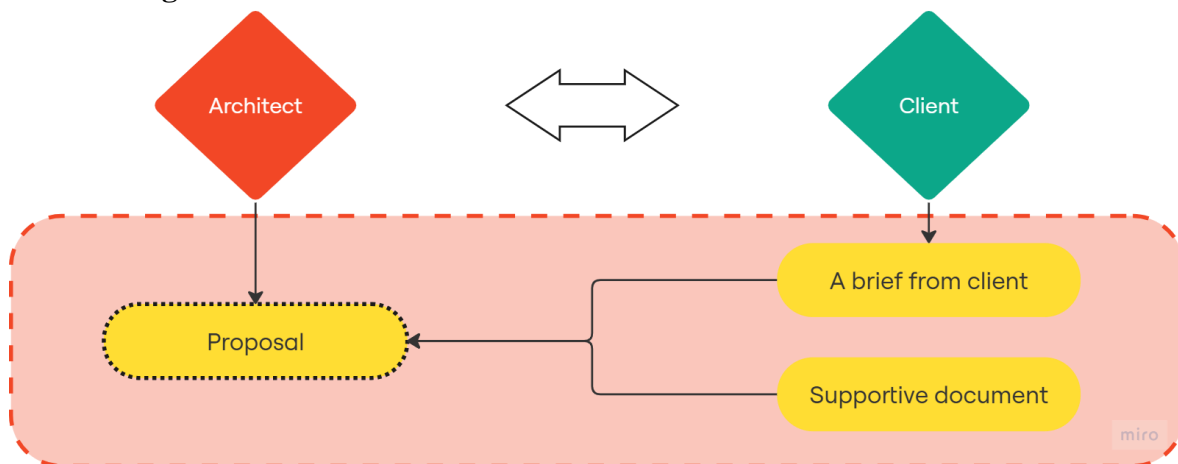
Figure 1: Initial conversation between client & designer

2.1. Key stakeholders

- Throughout the interior execution process, the primary communication happen between the designer and client, designer and contractor, and client and contractor. And each of these stakeholder has crucial responsibilities during various stages of interior execution process.
- Efficient collaboration amongst Client-Designer-Contractor ensures smooth execution, timely completion, and a good quality interior projects. Client is primary responsible for decision making, who initiates the project and provides approval at various stages of project. Interior designer/ architect is a creative person who is responsible for design conceptualization and planning of the project. Contractor and the team is responsible for implementing the design to real life.

2.1.1. Client's Role

- The client plays a crucial role in the interior execution process by defining the project's requirements, preferences, and budget. They are responsible for approving designs, selecting materials, and

reviewing execution plans. Throughout the project, the client handles financial commitments by making payments and ensuring the project stays within the agreed budget. Their feedback is essential at various stages.

2.1.2. Architect/Interior designer's role

- The interior designer creates detailed plans with layouts, 3D renders, and mood boards, specifying materials, colors, and decor. They collaborate with contractors, conduct site visits to ensure quality, and communicate with the client for approvals and modifications.

2.1.3. Contractor's role

- The contractor manages labourers, suppliers, and daily execution activities, ensuring the work aligns with the approved design. They adhere to timelines, budgets, and quality standards while resolving on-site issues and coordinating with designers to maintain project accuracy and efficiency.

3. Various execution stages in interior industry

3.1. About Execution

- The execution of an interior design project undergoes through a lot of processes, beginning with project initiation and planning, where client requirements, budget, and preferences are discussed. A site survey is conducted to have proper dimensions and understand existing conditions, followed by the creation of a project brief outlining the scope, timeline, and responsibilities.

- Next is the concept development and design phase, where mood boards, sketches, and 3D visualizations are prepared to present the overall aesthetic with functional layout.

- Once the client approves the design, detailed documentation and approvals are generated, including technical drawings, BOQ, and material specifications. Necessary permits are obtained at this stage.

- The procurement and contractor on boarding phase involves sourcing materials, finalizing vendor contracts, and hiring skilled labour for execution. During execution and site management, the site is prepared, and civil work, electrical, plumbing, carpentry, and painting are carried out according to the approved design. Regular site inspections ensure quality and adherence to the plan.

- Following this, the finishing and styling phase involves installing fixtures, placing furniture, and adding decorative elements and soft furnishings to enhance the space. A final inspection and handover is conducted, where the project is reviewed for defects, cleaned thoroughly, and handed over to the client with all relevant documentation.

3.2. Scope of improvement

- Young architects and interior designers will have information on the various execution methods of interior /architectural projects. They will be having all the real time updates at one place having all the concerned agencies at one place. Also client's involvement will also increase as system will allow to get necessary design approvals from client before the execution process start on site.

- Also for any young designer all the data will be stored at one place, can be exported also whenever required.

3.3. Streamline the execution methods

- When executing the interior design of a residential space, the process typically follows these steps:

3.3.1. Step-01-Communication with client & Contractor

- The process begins with an initial communication between the client and the designer. During this

stage, the client shares all necessary documents and project details. Based on this information, the designer creates a proposal with the scope of work. Once the proposal is ready, the designer prepares a tentative quotation. Upon the client's approval of the quotation, the execution process can start.

3.3.2. Step-02- Defining the project stages

- For the seamless execution of the 3 BHK apartment interior, the project is divided into various stages. After the proposal is approved, the designer prepares and shares detailed drawings with the client. Once the client gives their final approval, the drawings are made accessible to the contractor for execution. The project stages typically include:
- Civil Modifications: Structural changes, wall alterations, or demolitions.
- Electrical Work: Wiring, switchboard installations.
- Ceiling Work: False ceiling installation and related detailing.
- Furniture Work (Carpentry): Custom furniture or sourced furniture.
- Painting and Finishing: Wall treatments, paint application, and polish.
- Final Décor & Styling: Placement of decorative items, accessories, and soft furnishings, and lighting fixtures.
- This structured, stage-wise approach ensures smooth execution, clear communication, and efficient project management.

4. Analysis of existing technologies for project management execution

- For smooth operations on site, various project management web solutions are available in market like, Monograph, Trello, Zoho projects, Click Up. For understanding the strengths and weaknesses of such solutions, a case study of Monograph is done in detail.

4.1. Monograph

- The Monograph PMC Portal is a Project Management and Collaboration platform designed specifically for Architecture, Design, and Construction firms. It provides a centralized system to manage projects, track time, monitor budgets, and collaborate effectively with team members and clients.

4.1.1. Pros

- The Monograph PMC Portal offers a centralized communication system that keeps designers, contractors, and clients aligned throughout the project lifecycle. Its efficient task management feature enables seamless tracking of on-site activities, site visits, and key milestones, ensuring that all tasks stay on schedule. With real-time updates, the platform provides live status reports on project progress, helping to reduce delays and improve overall efficiency. Additionally, it enhances client transparency by allowing clients to view approvals, track changes, and access detailed progress reports, fostering trust and collaboration.

4.1.2. Cons

- Doesn't compatible with mobile devices. We have to rely on computer device to get the real time updates.
- Doesn't provide or support interior execution methods.

4.2. Potential things to improve in the technologies available

4.2.1. Problems

- Many professionals still rely on a mix of WhatsApp, emails, calls, and spreadsheets to manage communication and updates.
- Updates about site progress are often delayed or manually reported, causing project delays
- Clients and contractors sometimes act on outdated versions of drawings, leading to rework.
- Various drawings, site related documents, and site instructions are stored in scattered places.
- No transparency of project schedule and meetings with various stake holders
- Many tools are not mobile-friendly or intuitive on site.
- Too many people having access to sensitive files or decision logs.
- Field teams might not be comfortable with English-only apps or interfaces.
- There's no structured way to rate or discover reliable vendors or contractors for new projects.

4.2.2. Solutions

- Unified communication inside your app (chat, voice notes, updates) directly linked to project tasks, drawings, and decisions.
- Real-time status updates with on request photos/videos, and task check-ins from the site
- Version-controlled drawing uploads with digital approvals, comments, and locking previous versions once approved.
- Centralized document library with tagging, sharing, and search functionality (e.g., "latest kitchen drawing").
- Shared calendar with automated reminders, location tags, and check-in/check-out logs.
- Clean, mobile-first UI/UX for on-site updates, approvals, and task status.
- Role-based access control — e.g., clients see estimates, 3d visuals and mood boards, contractors see technical drawings and BOQs only.
- Support for Indian regional languages, voice inputs, and simplified interfaces for site-level staff.
- In-app rating system, contractor performance history, and peer reviews within the designer network.

5. Application

5.1. Authentication & Onboarding

- Sign up/Log in (Role Based)
- Key Role
- Designer
- Client
- Contractor

5.2. Dashboard

5.2.1. Designer's view

- Designer's view provides a dashboard tailored to the needs of interior designers. It includes a Project overview to give a glimpse of ongoing work, a list of active projects, and sections for pending approvals or reminders to keep track of client confirmations and project deadlines. Designers can also view upcoming meetings and site visits, access the activity center for task tracking, communicate

through the built-in Chat feature, and manage work using the execution framework designed to streamline the implementation process.

5.2.2. Client's view

- The client's view provides a clear and organized interface designed to keep clients informed and engaged throughout the project. It includes a project overview to give a snapshot of progress and a project timeline to track key milestones and deadlines. Clients can access and review design files, submit feedback, and manage approvals directly through the platform. They also receive reminders for pending actions and can view upcoming meetings and site visits to stay involved in key project activities. The built-in chat feature ensures smooth communication with the designer and contractor.

5.2.3. Contractor's view

- The contractor's view is designed to streamline on-site execution and daily task management. It displays a list of assigned projects, allowing contractors to easily access details for each ongoing job through activity centre. The today's tasks section highlights daily responsibilities, helping them stay focused and organized. Contractors can view project updates shared by designers or clients, ensuring alignment on any changes or new instructions. Additionally, the work progress tracker enables them to log completed tasks and monitor overall project advancement in real-time.
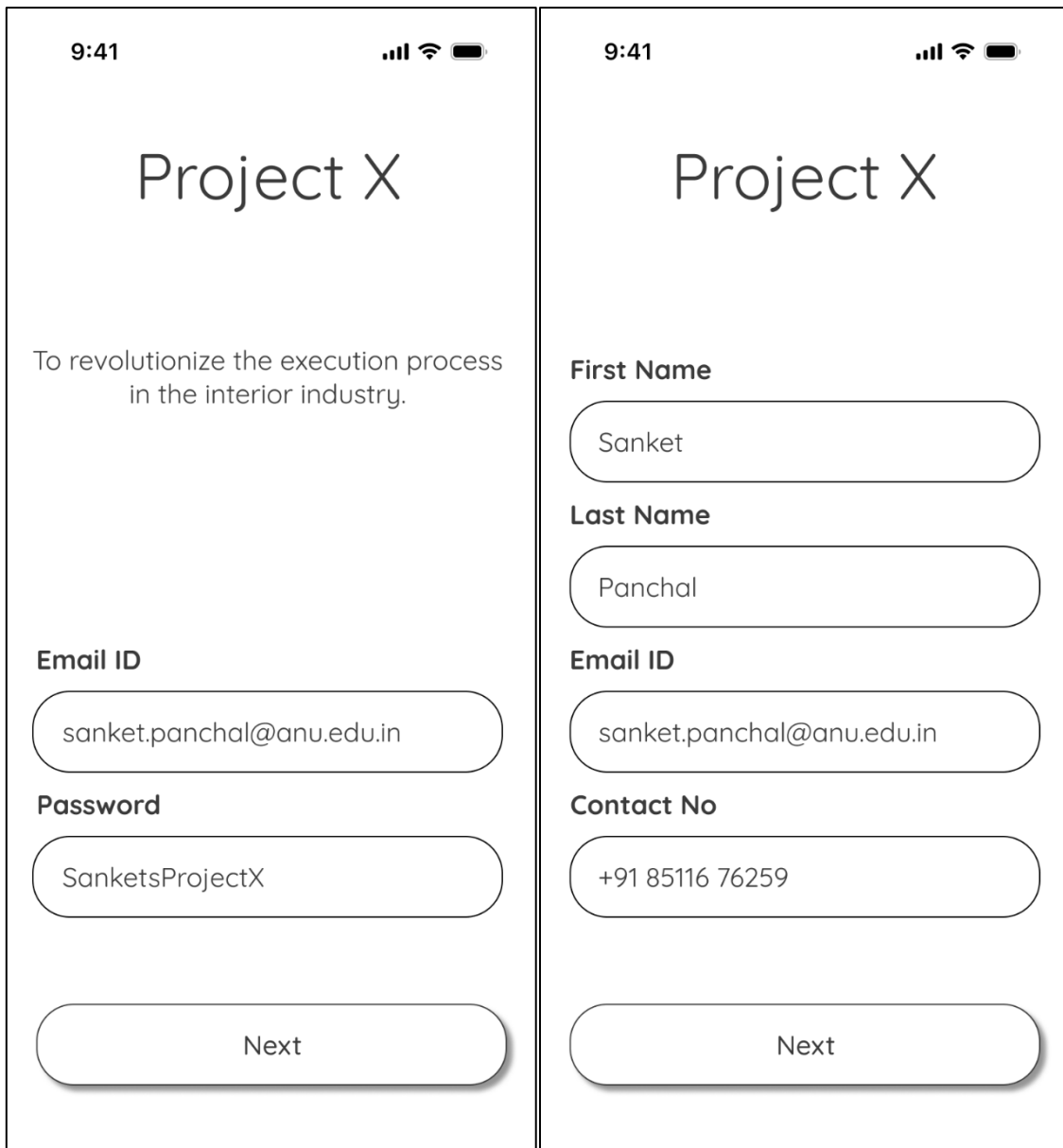
5.3. Key App features

- Chat interface for smooth communication among all project stakeholders – designers, clients, and contractors
- Minimises human effort and reduces communication gaps.
- Real-time updates accessible anytime, anywhere for all stakeholders.
- Simple tracking of overall project progress, task status, and resource allocation.
- Automated report generation for better transparency and documentation.
- Enables young designers to stay organised and manage multiple projects efficiently.
- Compatible with various regional languages, ensuring clarity in shared drawings and site communications for both clients and contractors.
- Centralised document and drawing management – no more searching through emails or WhatsApp group chats
- Integrated calendar for scheduling site visits, meetings, and deadlines.
- Push notifications and reminders to keep everyone aligned and on time
- Ensures approval workflows are smooth and traceable (e.g. design approvals before site execution begins)
- Enhances accountability with activity logs and communication history.
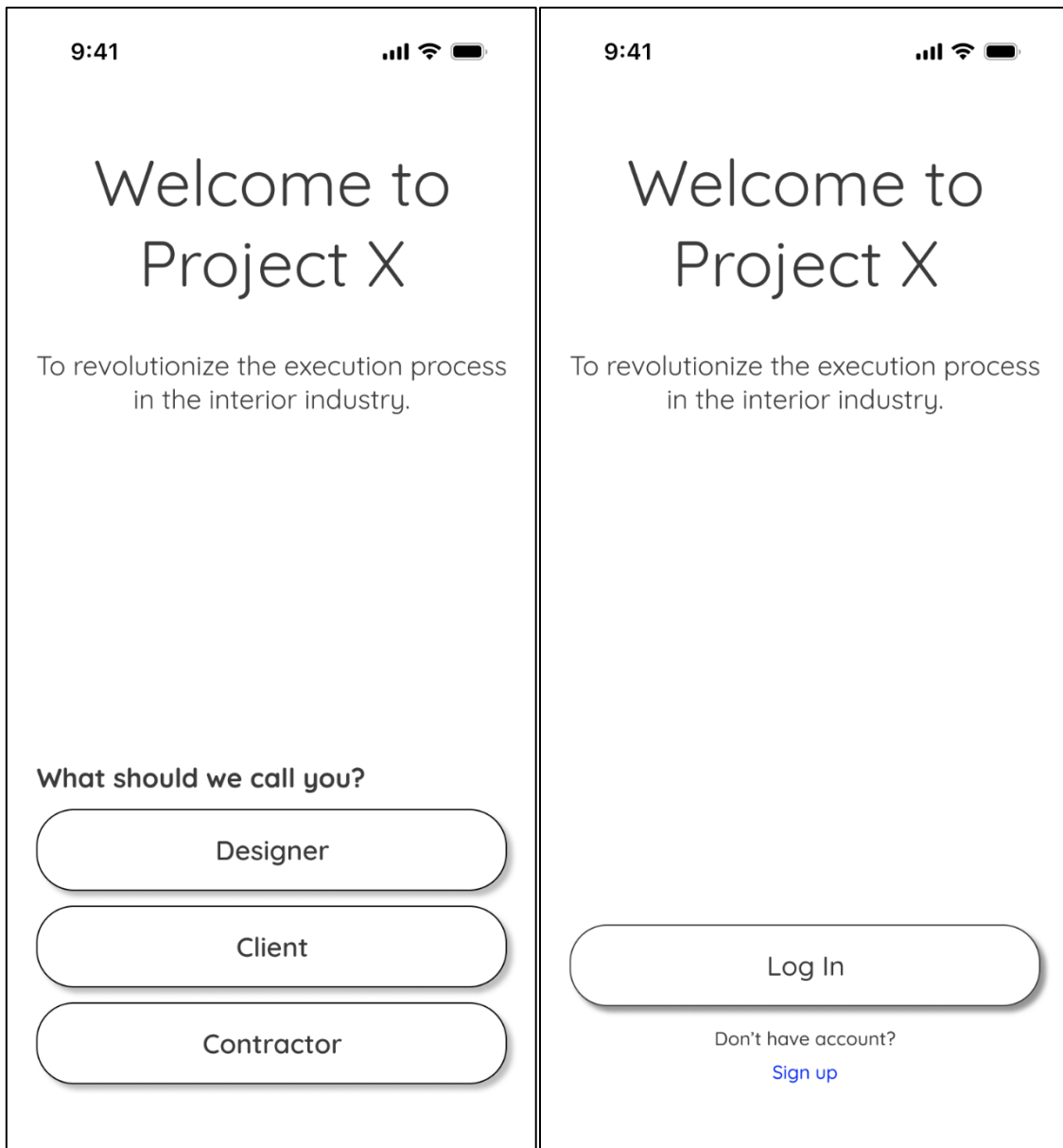
Figure 2 : Log in portal & Client wise bifurcation for ease of access

Figure 3: Required credentials for log in to individual home screen
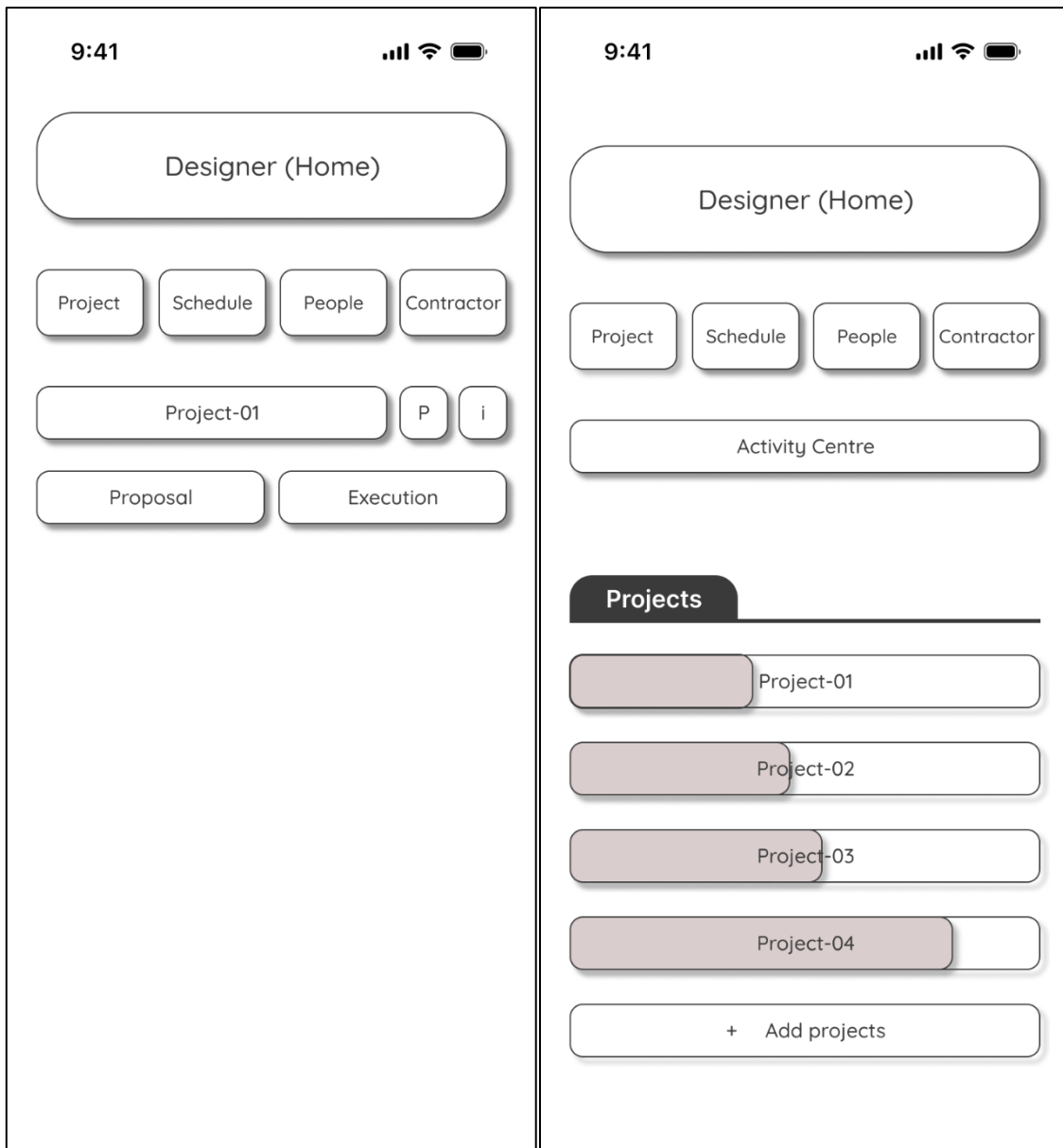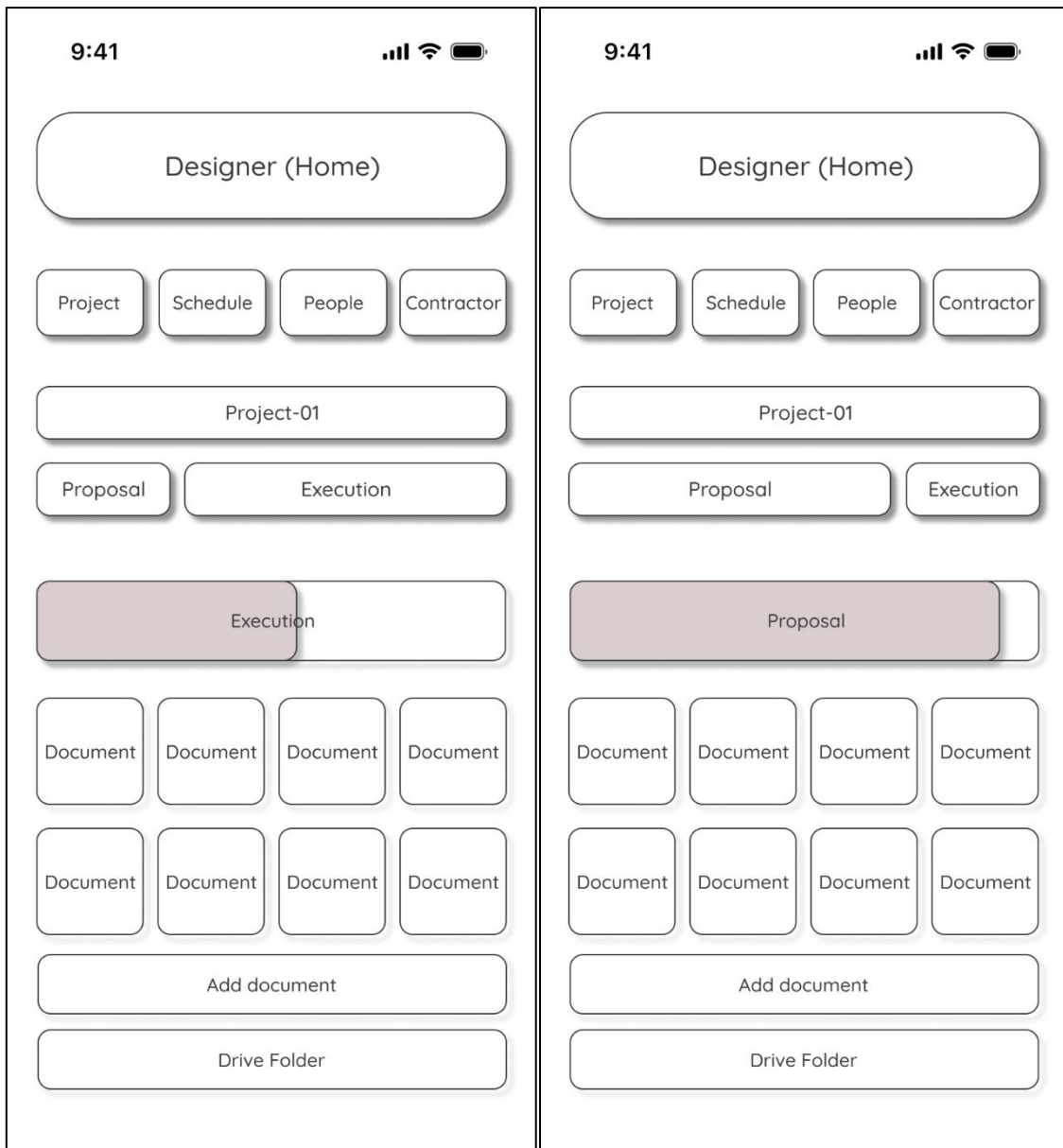
Figure 4: Designer's home page with project information and other information related to project

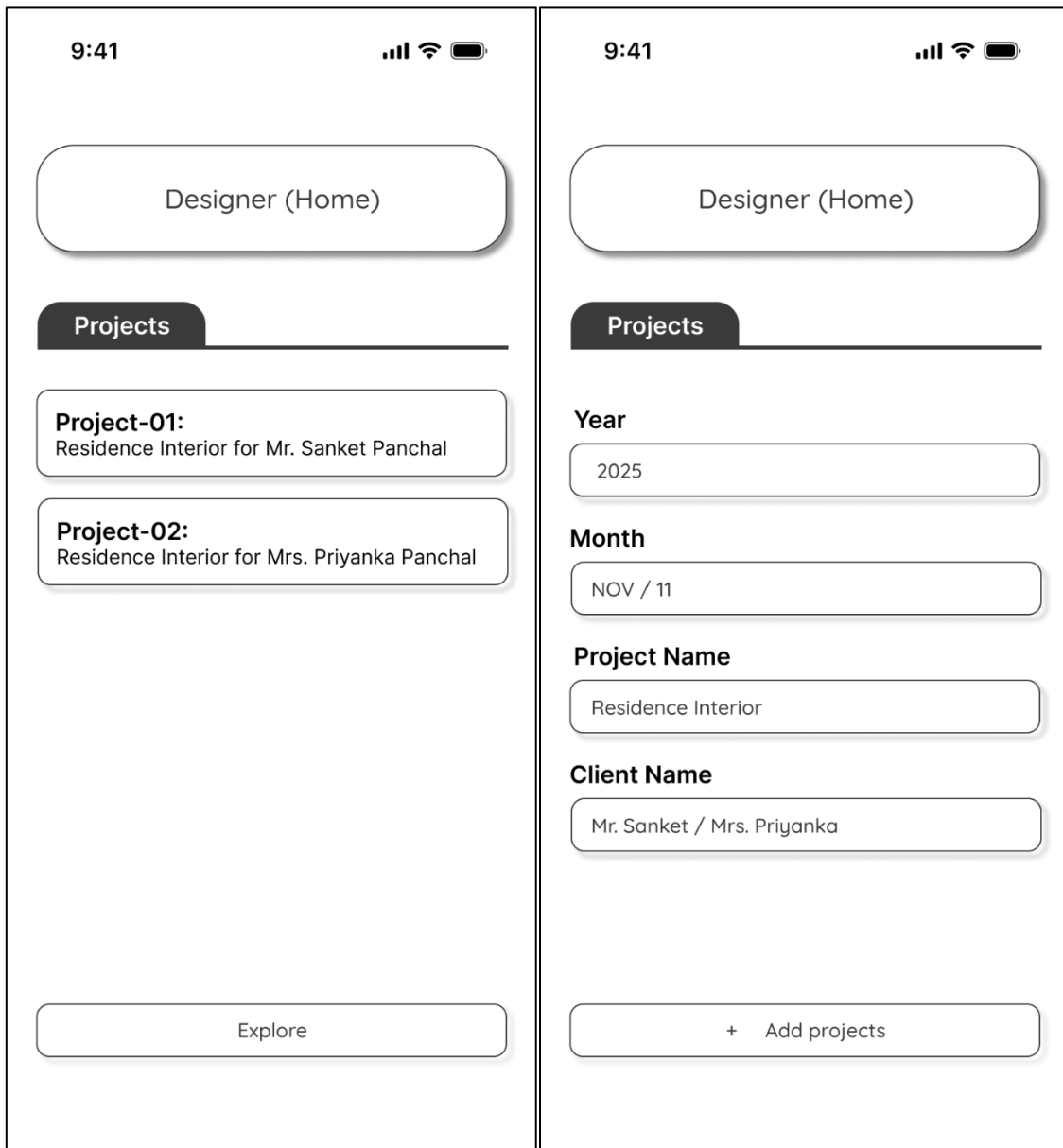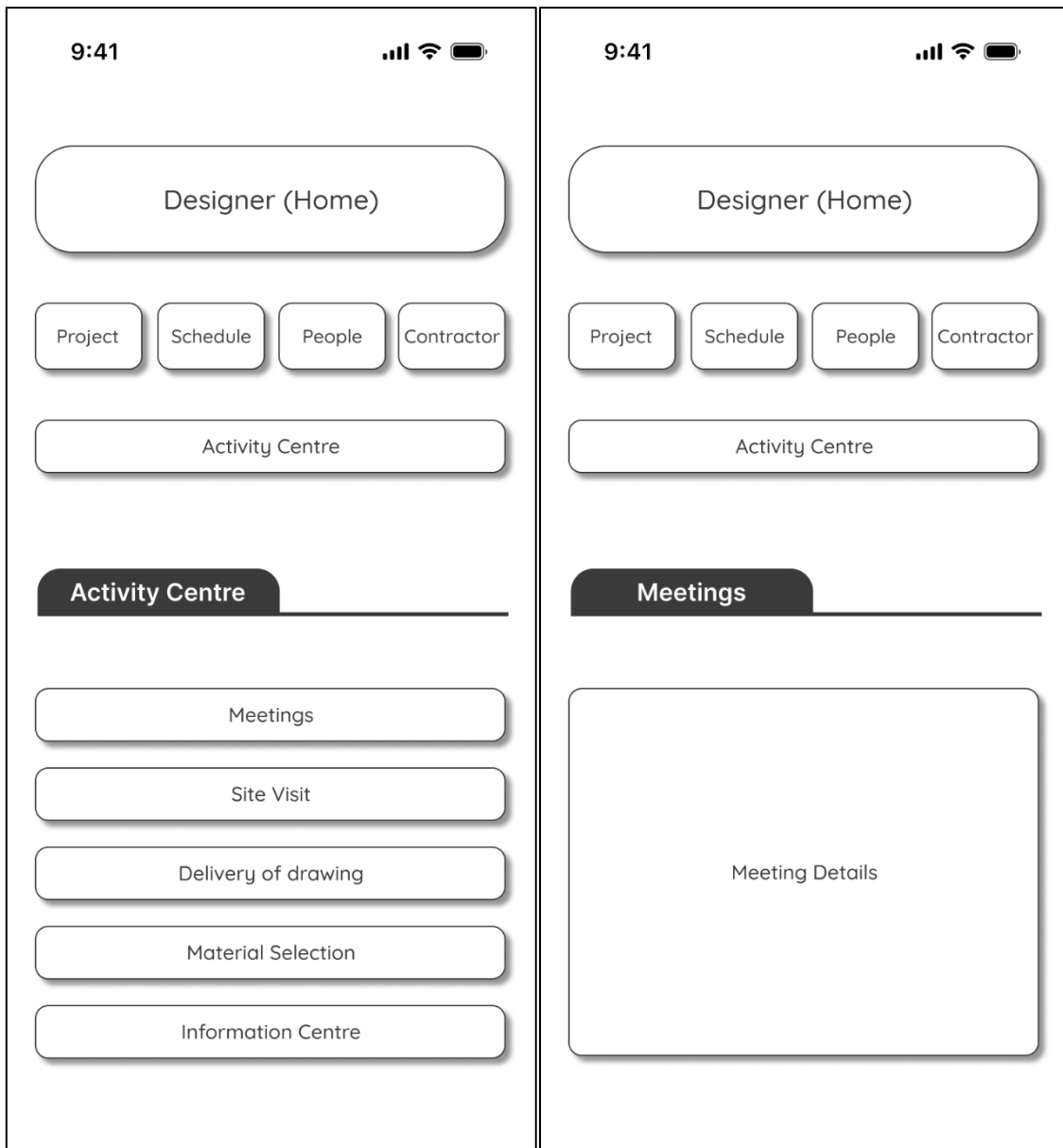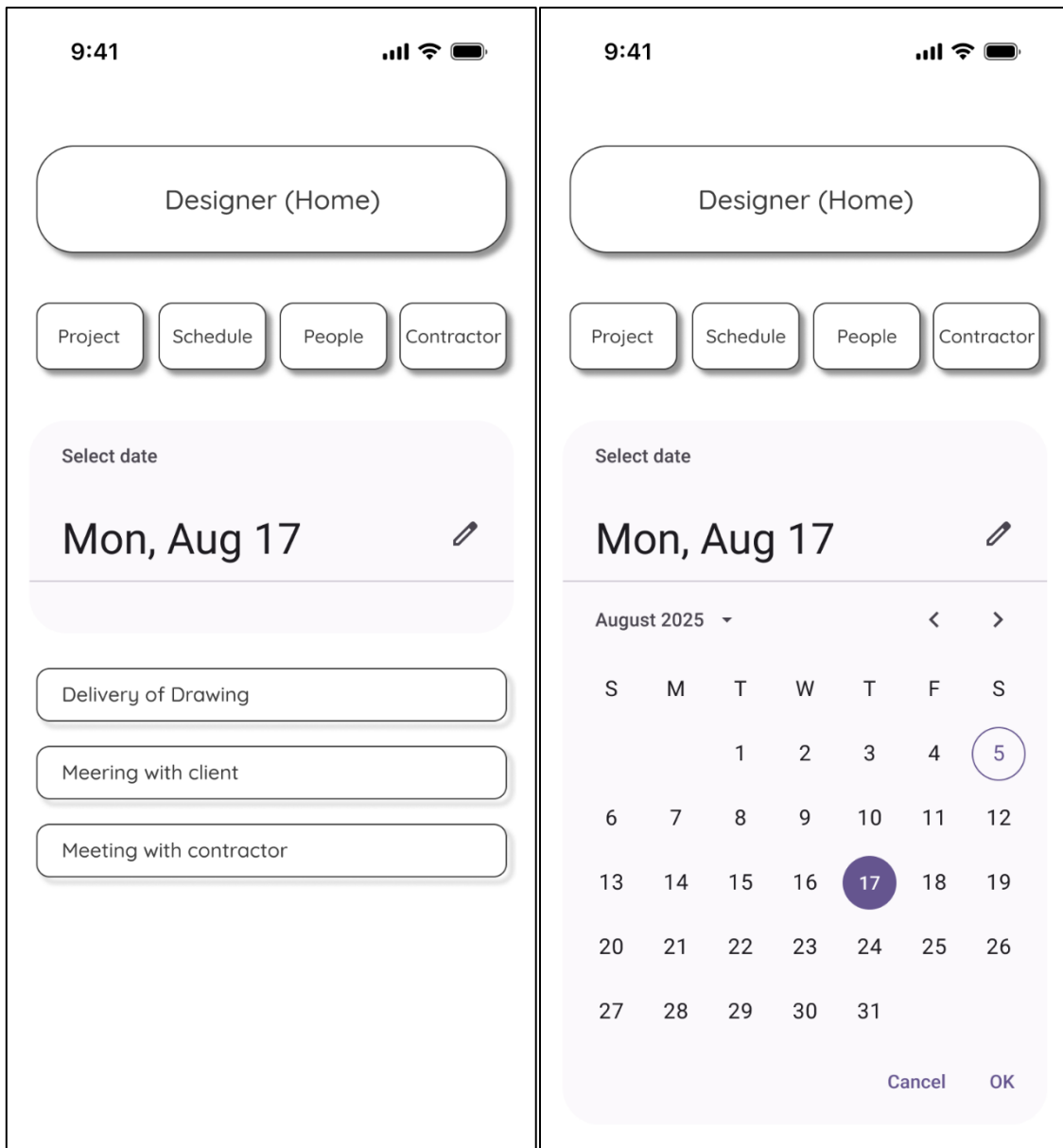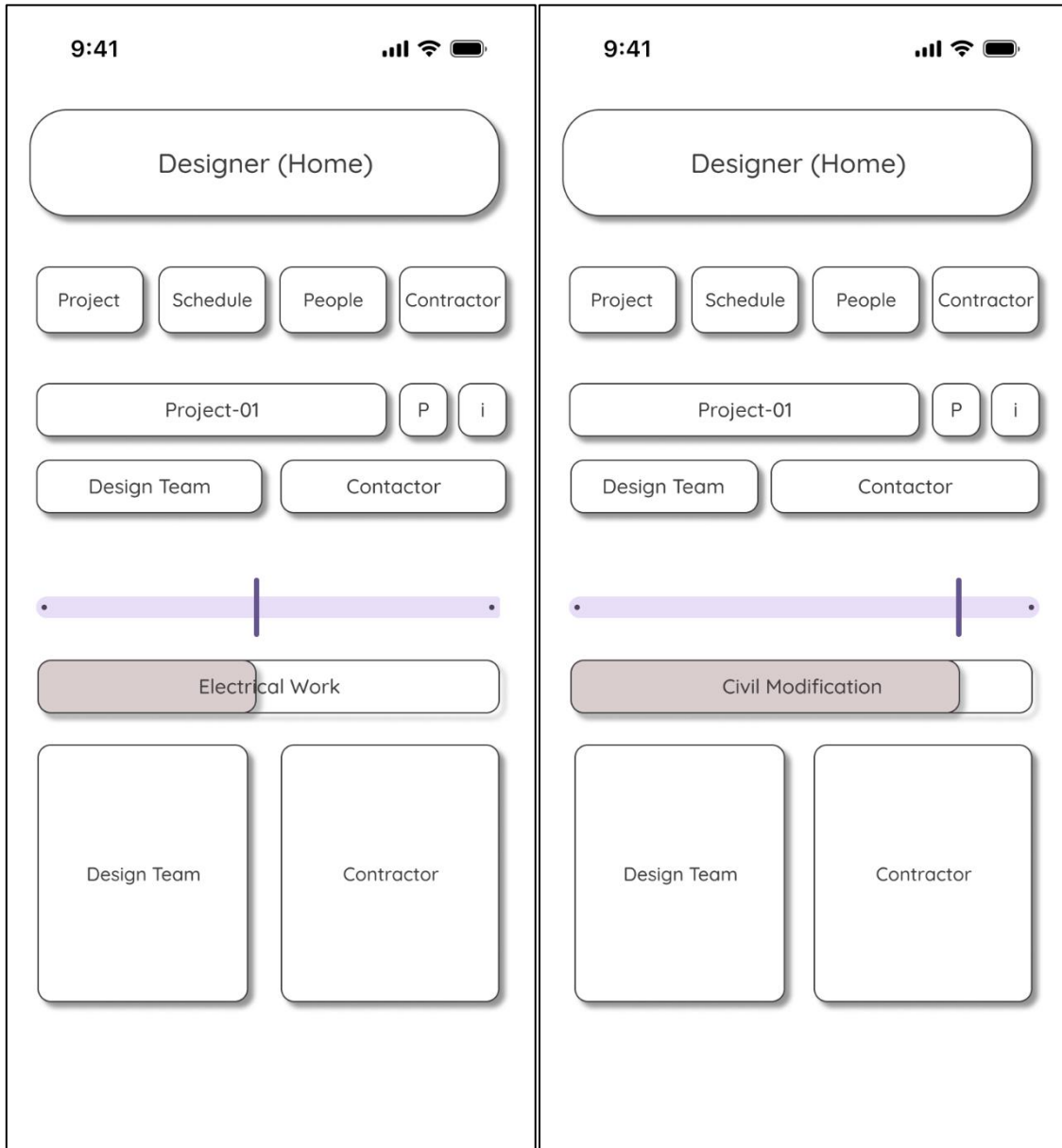**Figure 5: Project proposal and execution details**

Figure 6 : Details required to add new project
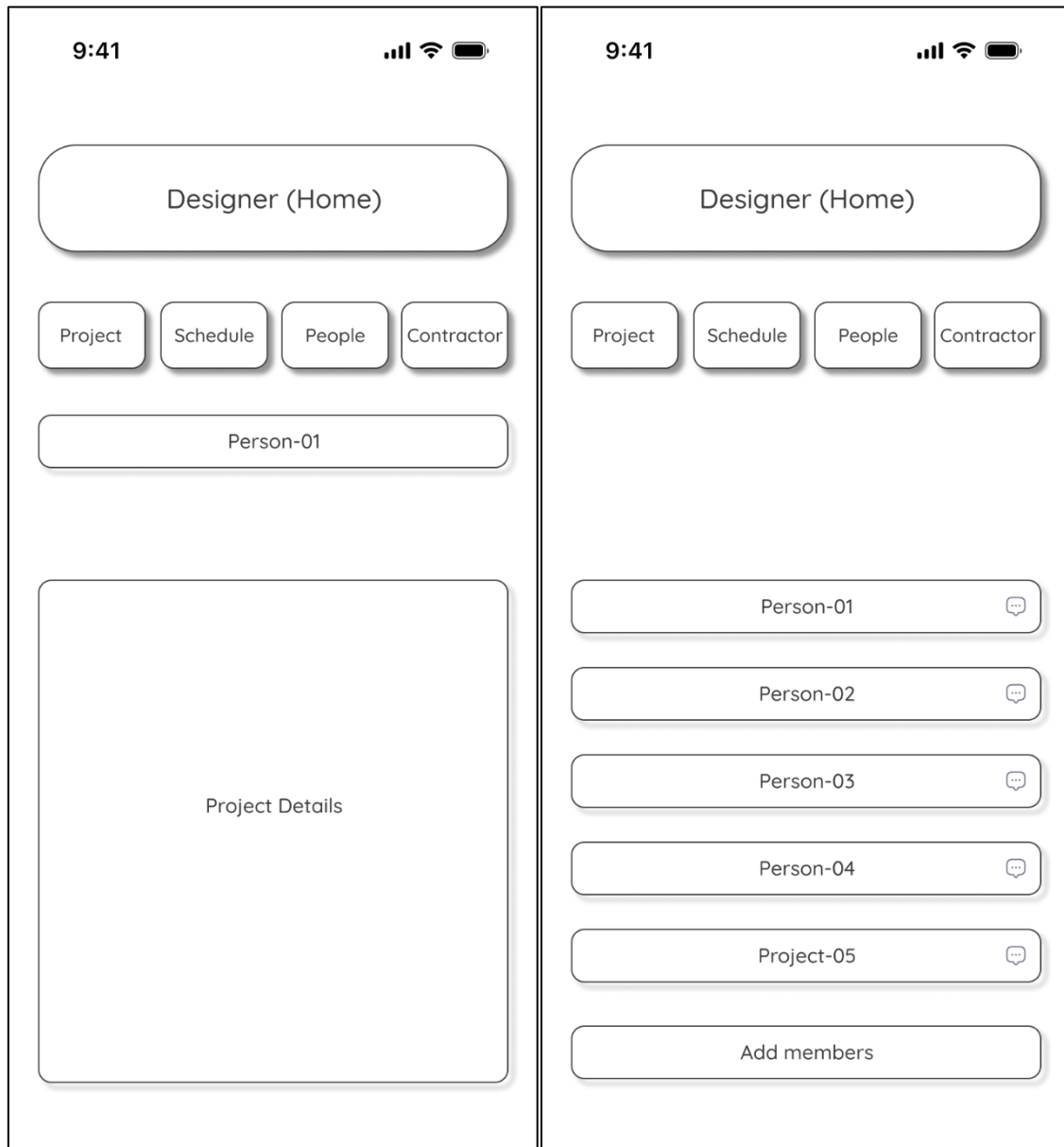
Figure 7: Activity centre for designer
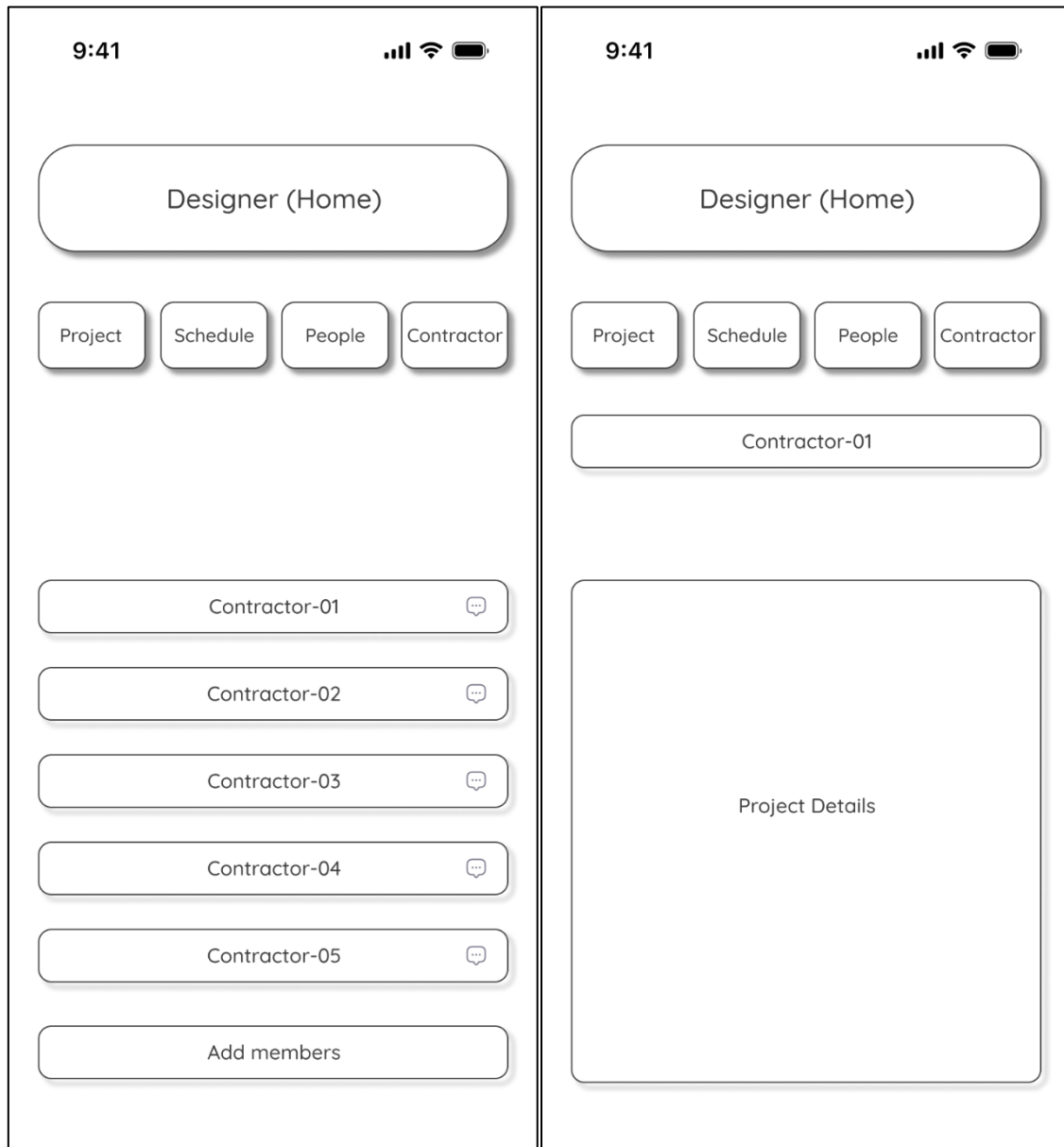
Figure 8: Designer's calendar with various task

Figure 9 : Phase wise information of project with associated team

Figure 10 : person wise project details where we can tract individual's involvement

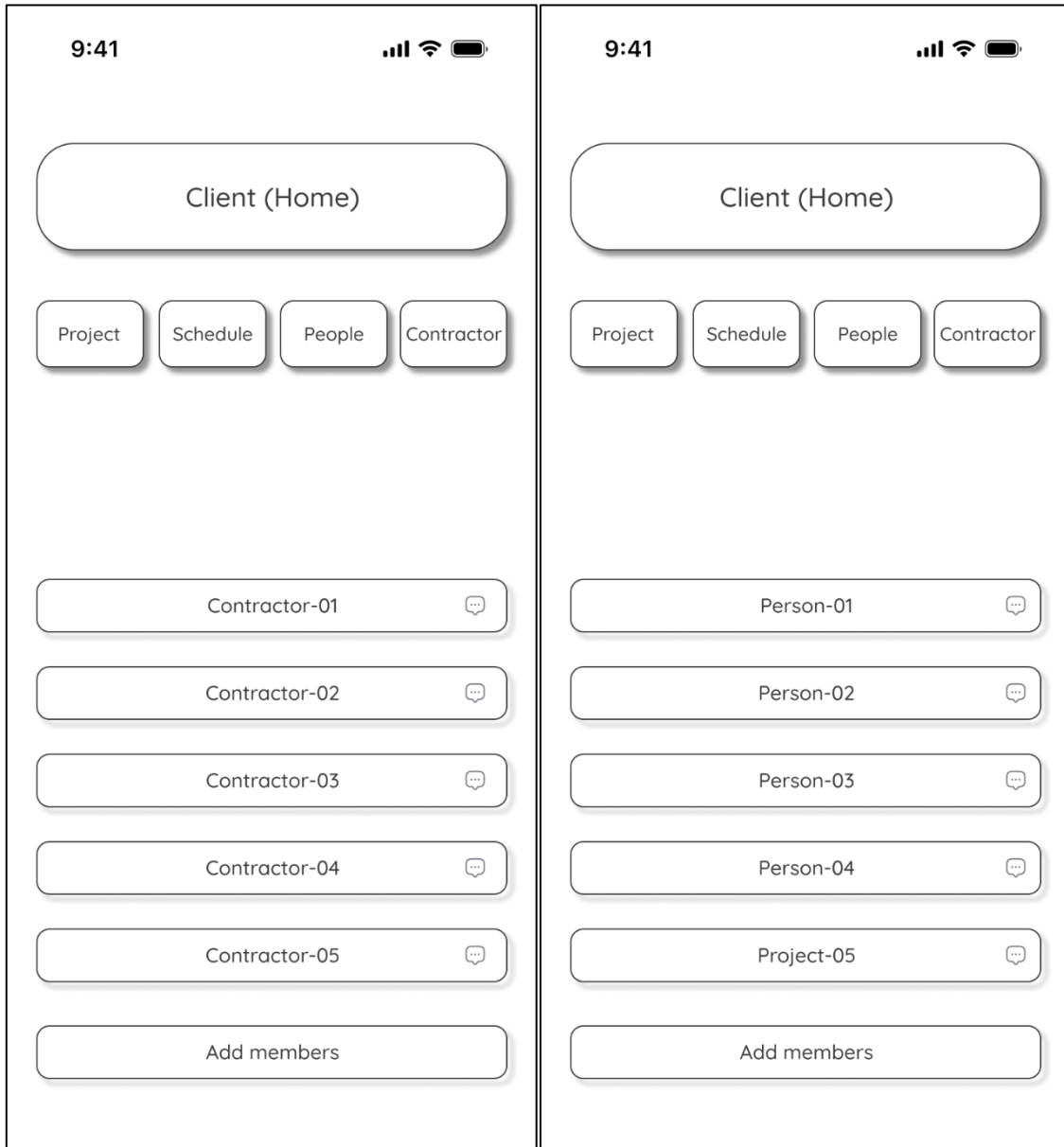**Figure 11: Contractor's involvement in various project**
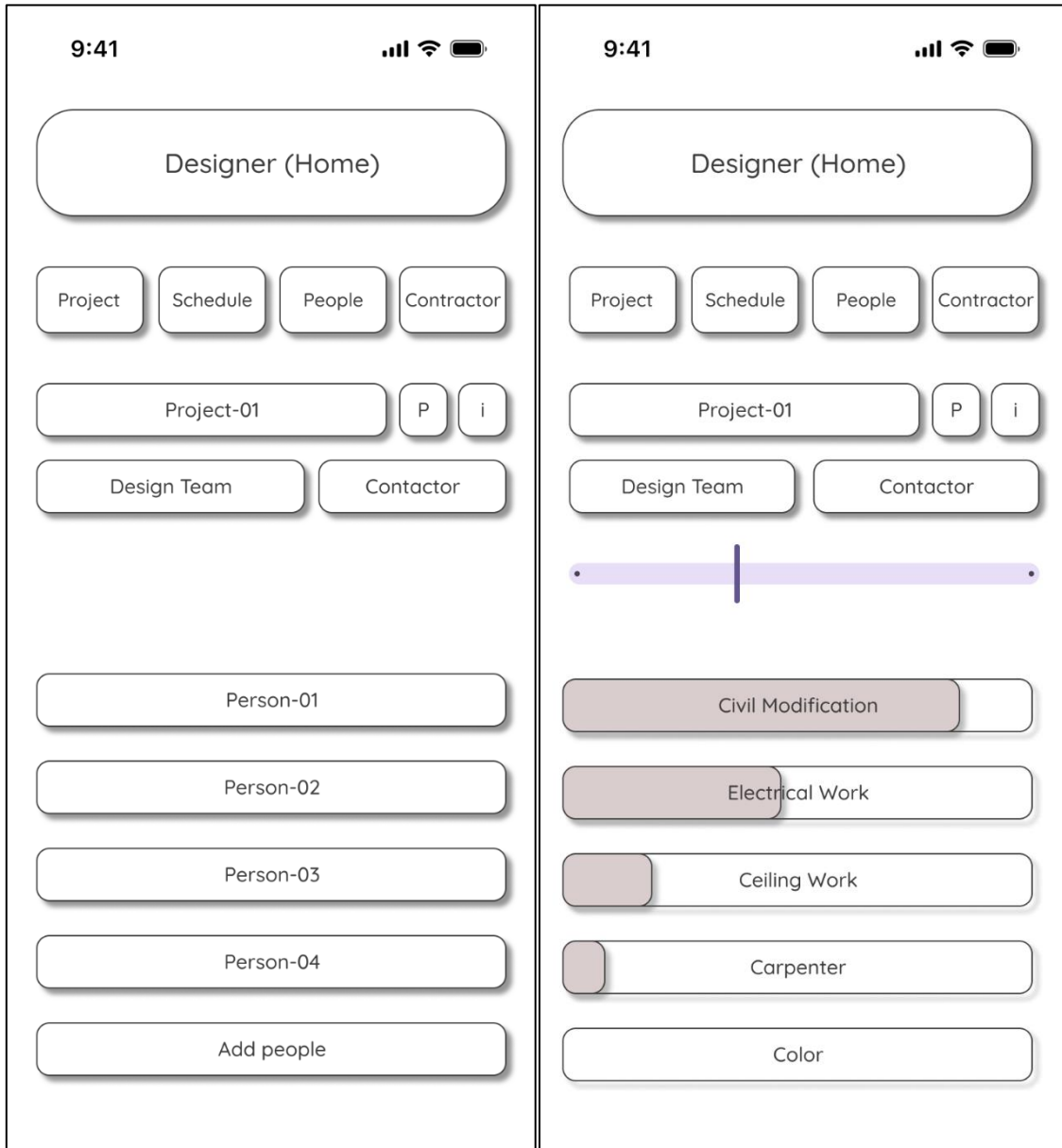
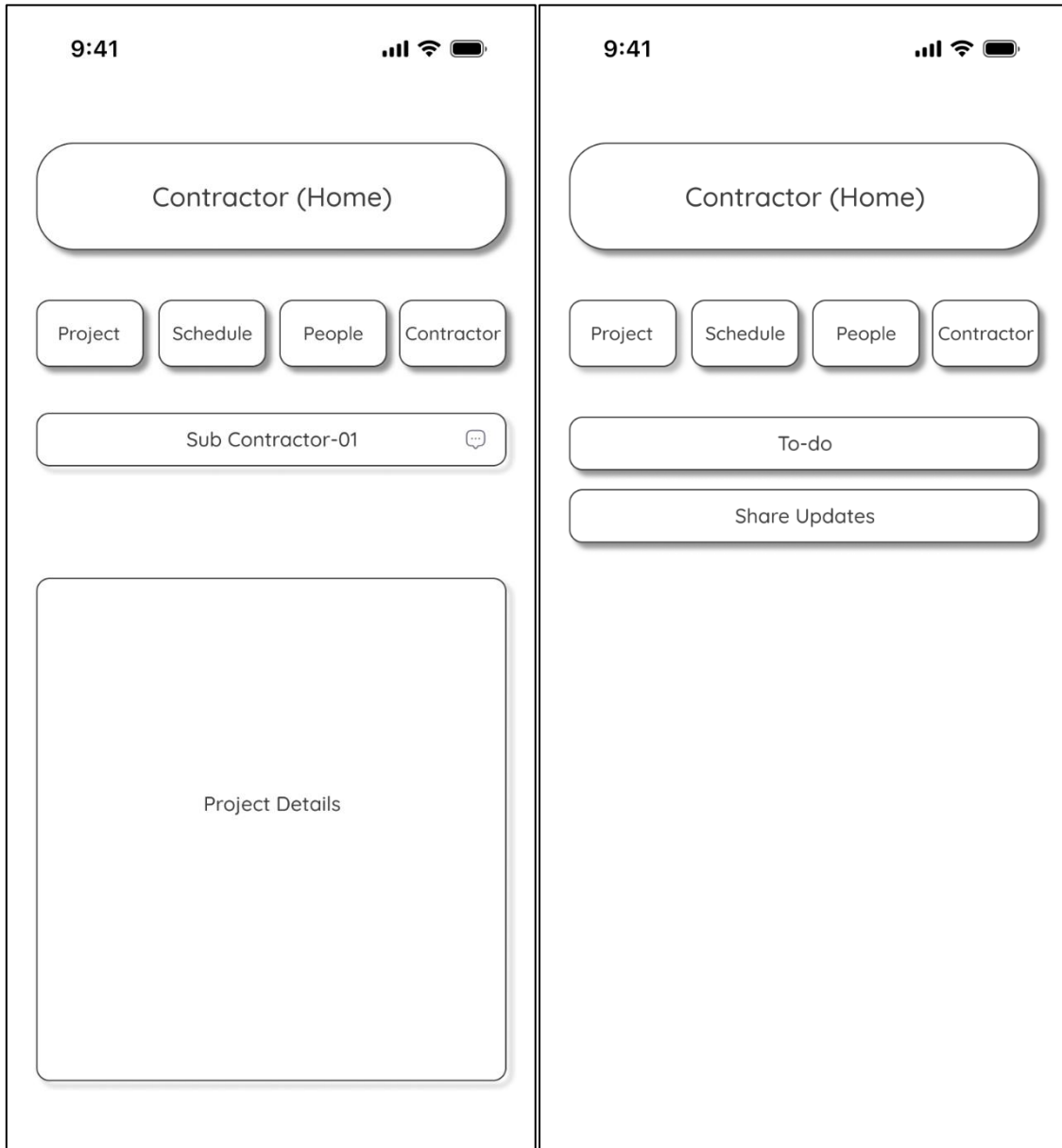**Figure 12 : project information with details of various stage**
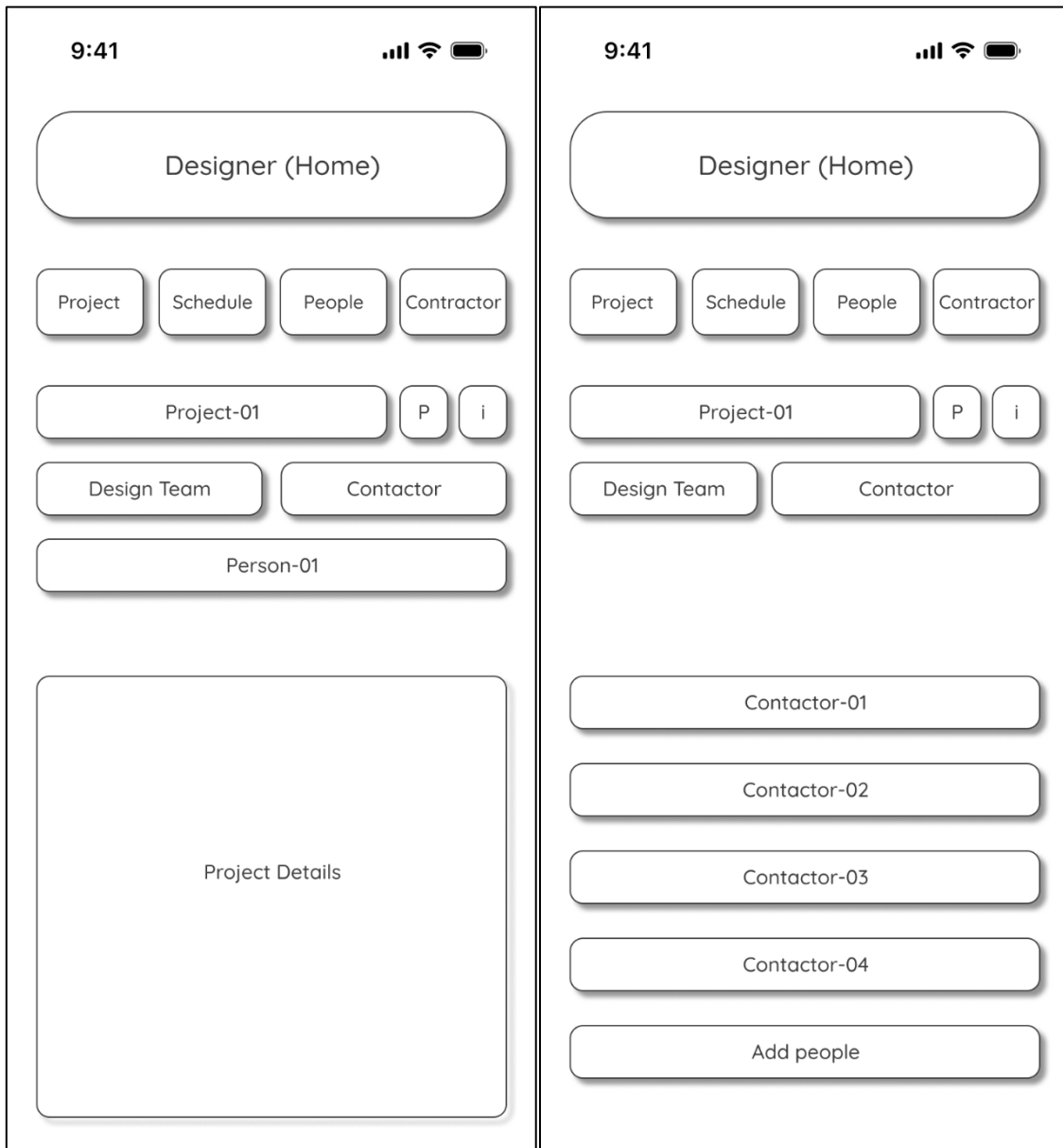
Figure 13: Project wise team's information
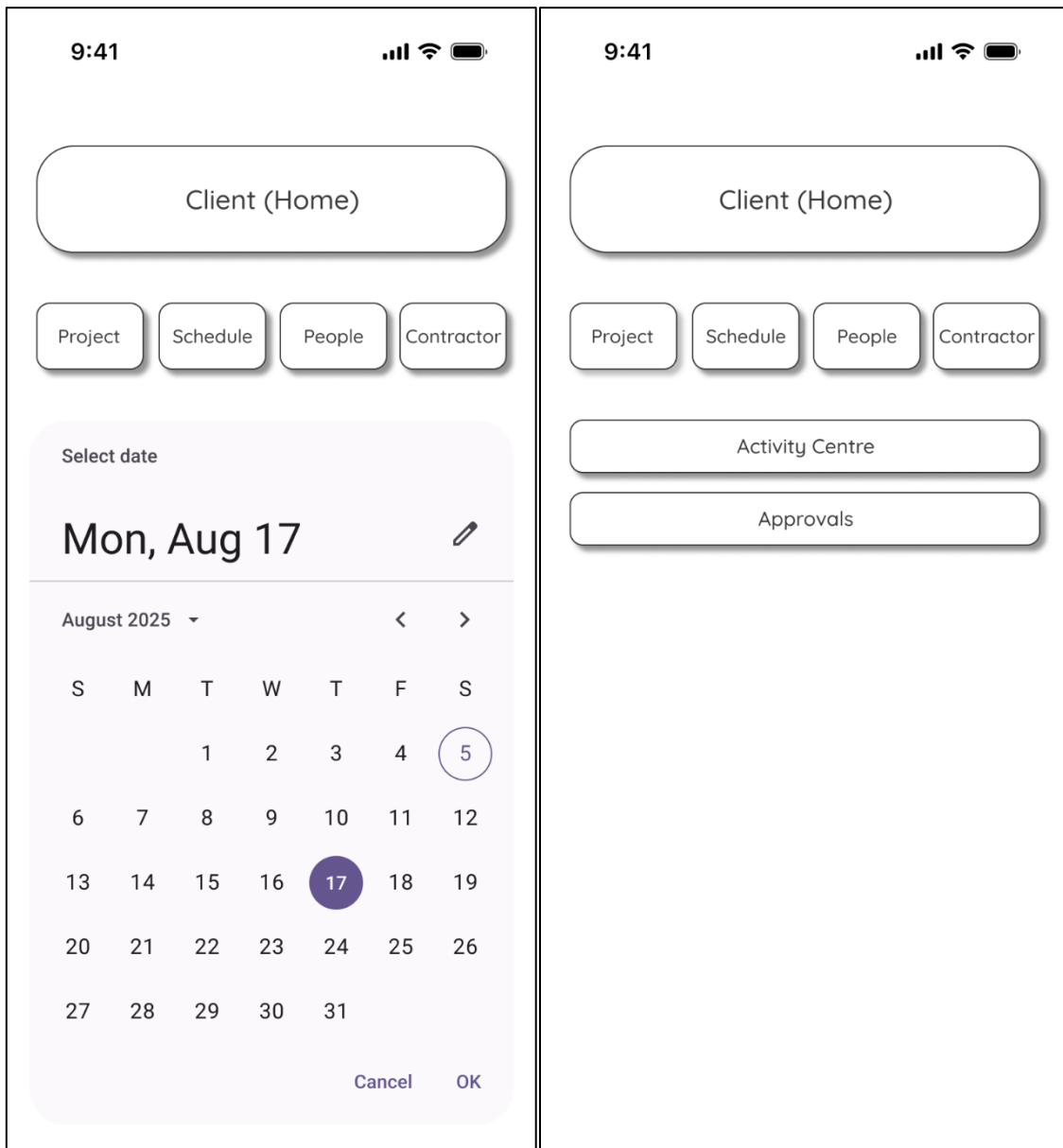
Figure 14: Client's portal with approval and calendar to see the daily activity

Figure 15 : Client can see project wise designer and contractor's association and chat with them

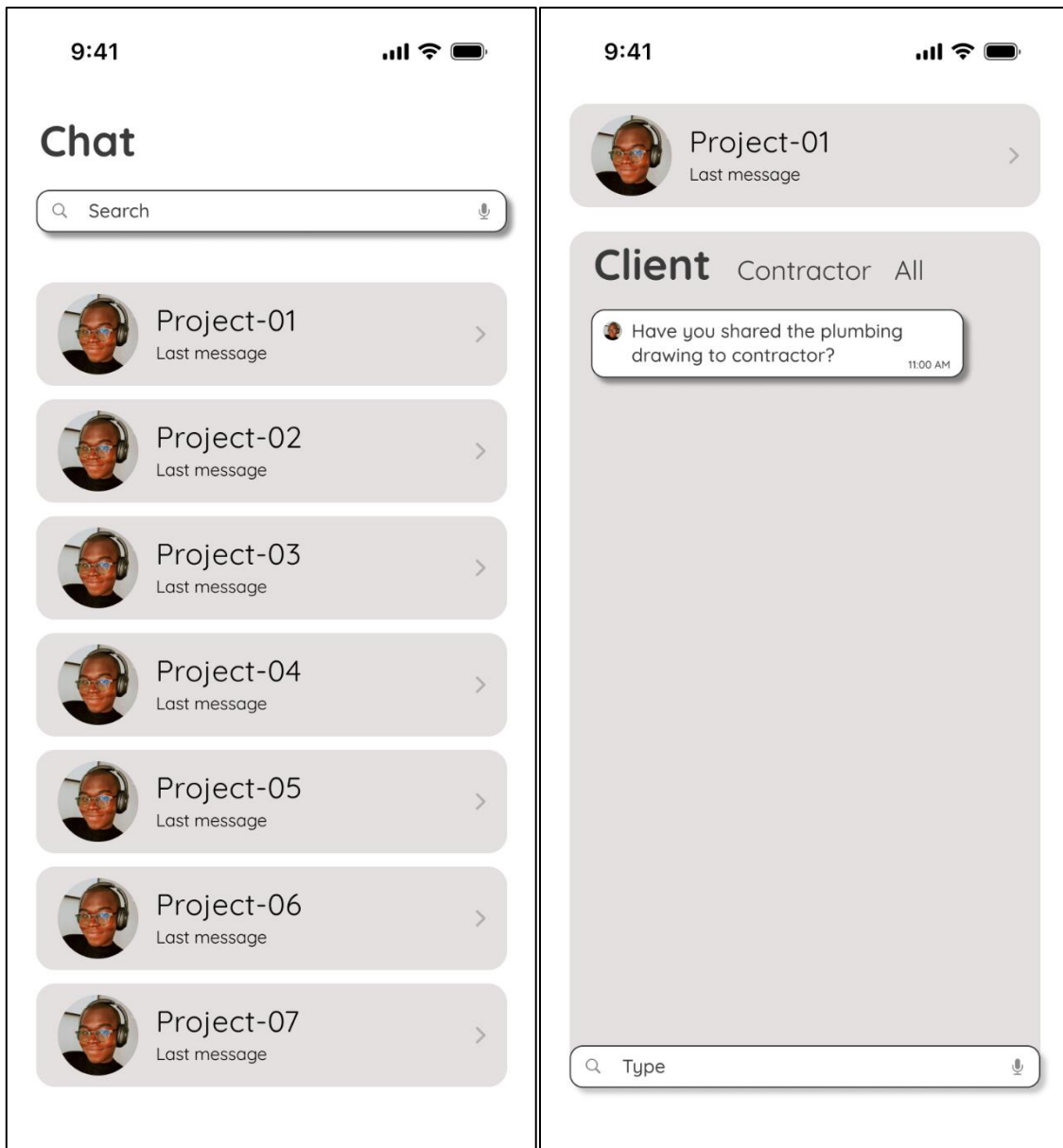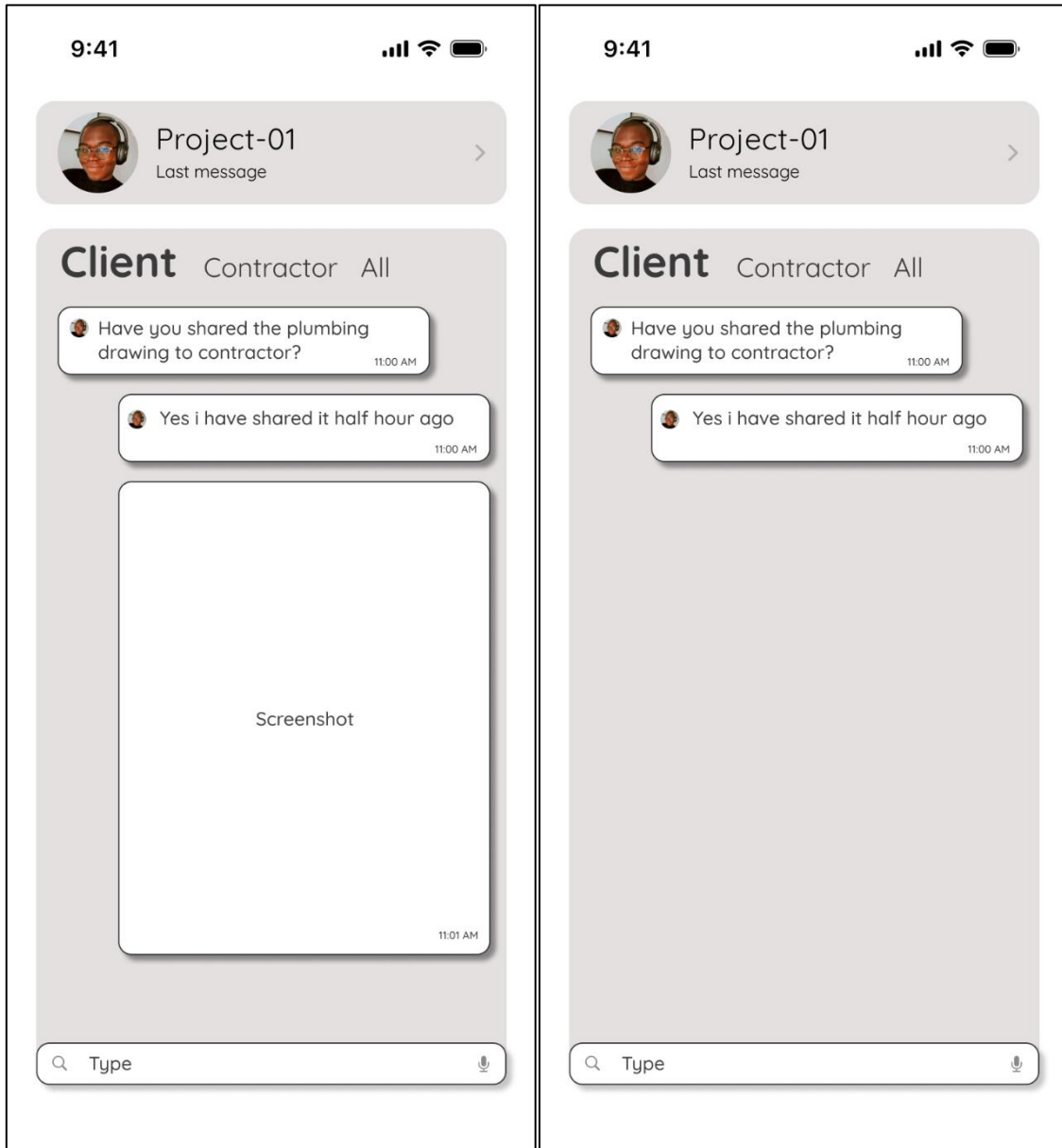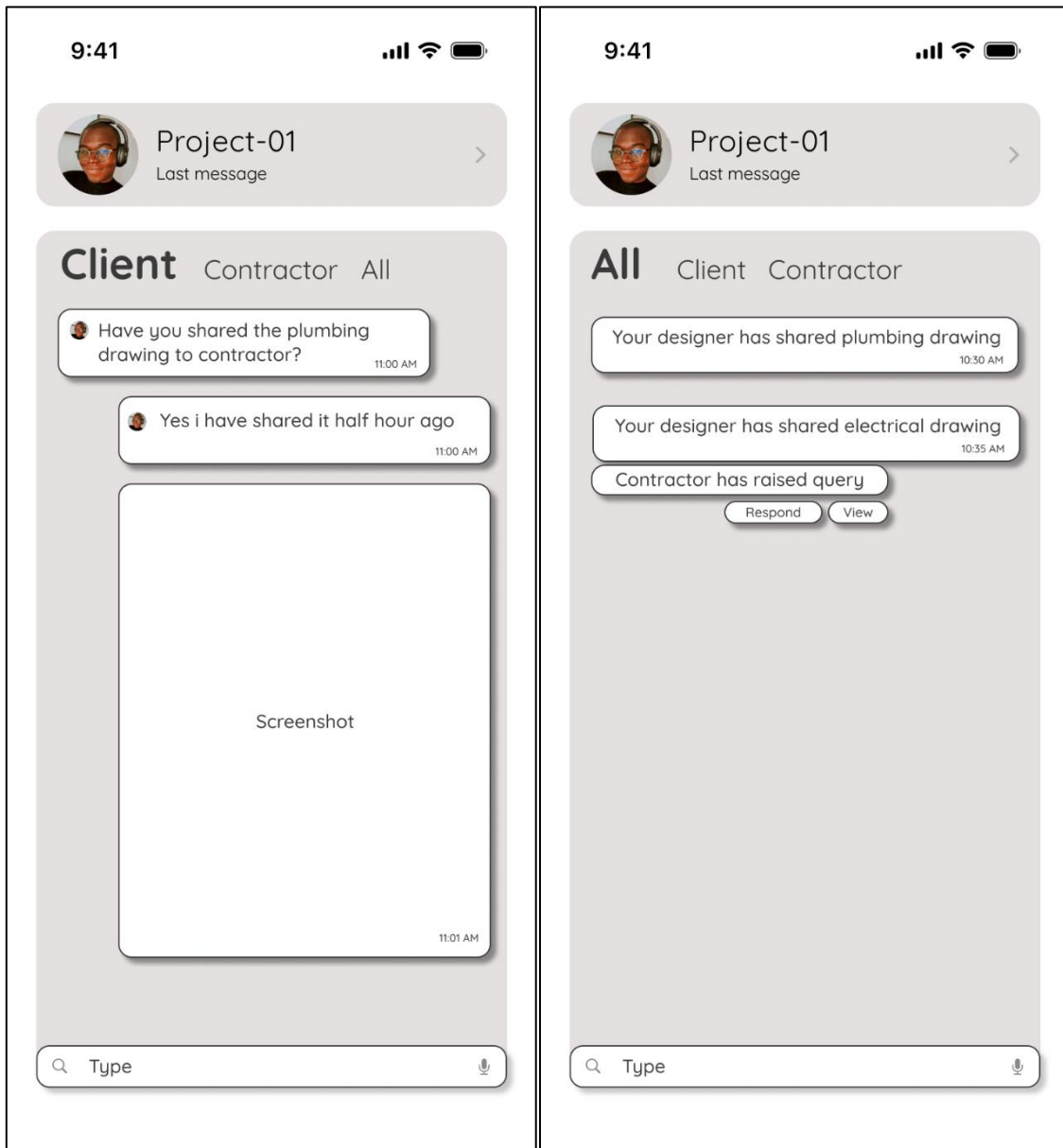**Figure 16: Contractor's portal with their to-do list**

Figure 17: Chat interface with all stake holders

Figure 18: Recent practice with WhatsApp groups and emails

Figure 19: Enhanced chat interface with solving each query at one place

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