

## Ideation Phase

### Brainstorm & Idea Prioritization

|               |                                  |
|---------------|----------------------------------|
| Date          | 1 February 2026                  |
| Team ID       | LTVIP2026TMIDS24988              |
| Project Name  | Civil Engineering Insight Studio |
| Maximum Marks | 4 Marks                          |

#### Brainstorm & Idea Prioritization:

**Project:** Civil Engineering Insight Studio

**Step-1: Team Gathering, Collaboration and Select the Problem Statement**

##### Team Collaboration Process

The team conducted a structured brainstorming session to identify real-world applications of Generative AI in engineering domains. The focus was on solving practical industry problems where AI could reduce manual effort and improve documentation accuracy.

##### Discussion Areas Explored:

- AI-based academic content generator
- AI travel itinerary planner
- AI fitness plan creator
- AI recipe blog generator
- AI-powered civil structure analysis tool
- AI-based construction progress documentation system

After evaluating feasibility, implementation complexity, and available APIs, the team selected a domain that:


1. Allows structured content generation.
2. Demonstrates clear AI capability.
3. Is easy to evaluate and test.
4. Has practical real-world relevance.

##### Final Problem Statement

###### Problem:




Civil engineers manually describe structures based on site images. Generating detailed documentation including materials, structural components, construction methods, and progress status is time-consuming and subjective.


**Selected Solution:** Develop an AI-powered web application using Google Gemini Vision API and Streamlit to analyze civil engineering structure images and generate professional structural documentation




## Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

 10 minutes to prepare  
 1 hour to collaborate  
 2-8 people recommended

 **Before you collaborate**

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

 10 minutes

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**A Team gathering**  
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.


**B Set the goal**  
Think about the problem you'll be focusing on solving in the brainstorming session.

**C Learn how to use the facilitation tools**  
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →

**1 Define your problem statement**


What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

 5 minutes







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**PROBLEM**

How might we [your problem statement]?



**Key rules of brainstorming**  
To run an smooth and productive session

|   |   |
|---|---|
|  Stay in topic.  |  Encourage wild ideas.   |
|  Defer judgment. |  Listen to others.       |
|  Go for volume.  |  If possible, be visual. |

## Step-2: Brainstorm, Idea Listing and Grouping

During ideation, multiple feature ideas were generated. The focus was on quantity first, filtering later.

### Idea Listing

Raw Ideas Generated:

- Detect construction materials (concrete, steel, bricks)
- Identify structural components (beams, columns, slabs, trusses)
- Detect construction stage (foundation, framing, finishing)
- Generate professional engineering report format
- Highlight possible structural risks
- Count visible material elements
- Compare two site images for progress tracking
- Download structural report as PDF
- Add safety observation detection
- Multi-language report generation
- Dark mode UI

2

**Brainstorm**

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

**TIP**

You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!



3

**Group ideas**

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

🕒 20 minutes

Person 4

**TIP**

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mind.

**Step-3: Idea Prioritization**

A prioritization matrix was applied using two key factors: Impact (Value to Civil Engineers) and Effort (Development Complexity).

**High Impact – Low Effort (Selected for Implementation)**

- AI-powered image + text structural analysis
- Material identification
- Structural component identification
- Professional engineering documentation format
- Streamlit-based interactive UI
- Google Gemini Vision integration

4

**Prioritize**

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

