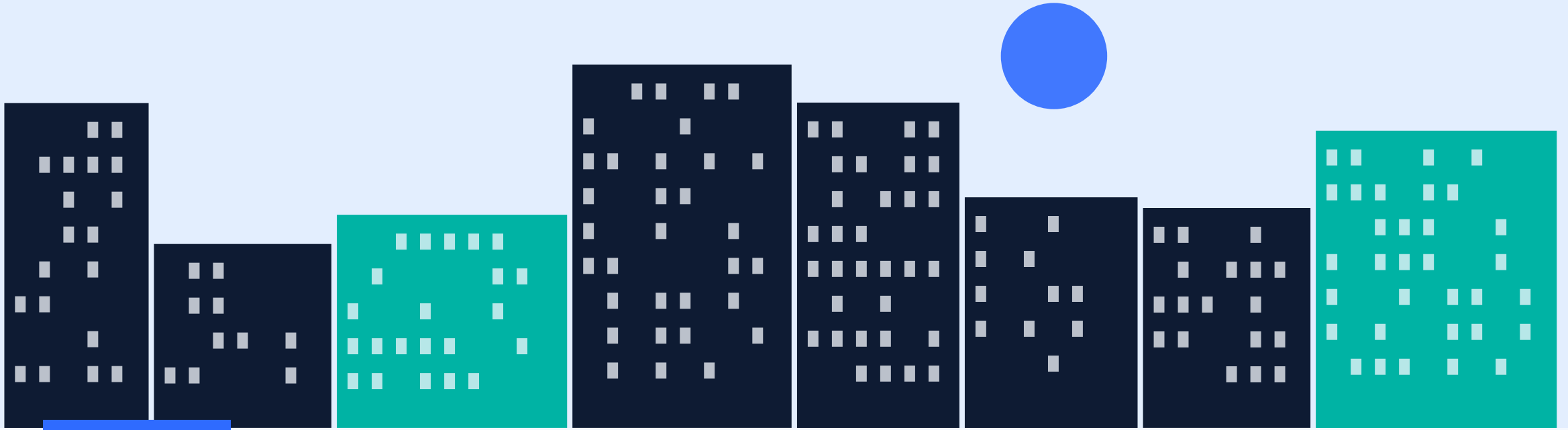




Earthquake-Resistant Low-Cost Housing

Design study for rural homes

Aarav Sharma · Diya Patel · Prof. R. K. Mehta · Civil Engineering, 2025–26

Agenda

01

Introduction

02

Literature & Gap

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KEY IDEA

Safe rural house design is still handled manually in most places — slow, error-prone and hard to track.

Why this project matters

Introduction

- ▶ Safe rural house design matters to rural families and masons every day
- ▶ Current methods are manual, slow and hard to scale
- ▶ Affordable technology now makes automation practical
- ▶ This project builds earthquake-resistant low-cost housing as a working prototype

CONTEXT

Most rural families and masons we surveyed still rely on paper or spreadsheets for safe rural house design.

Objectives

- ▶ Automate the core steps of safe rural house design
- ▶ Give rural families and masons a simple, mobile-friendly interface
- ▶ Store data securely and generate reports
- ▶ Evaluate the system against the existing process

Literature survey

Study	Approach	Limitation
Study A	Rule-based automation	Not adaptive
Study B	Mobile data collection	No analytics
Commercial tools	Full-featured suites	Costly and complex

Representative summaries — replace with your own citations.

Existing vs proposed system

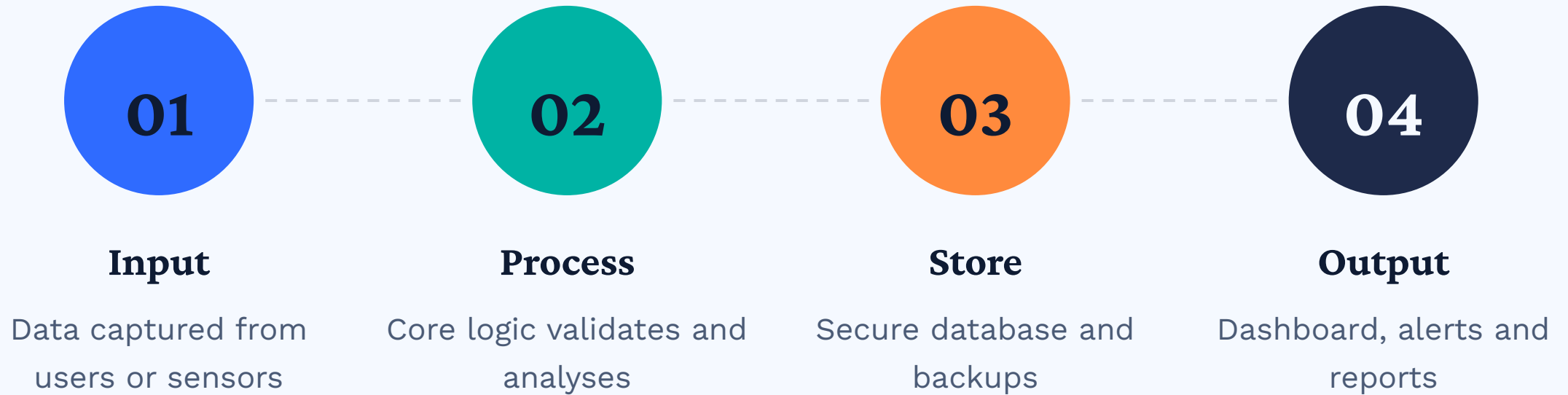
Existing system

- ✓ Manual records
- ✓ Slow turnaround
- ✓ No reports

Proposed system

- Automated workflow
- Real-time dashboard
- One-click reports

System architecture



Block diagram

Every module talks through one simple, testable interface.

The system is built in layers: an input layer, a processing service, a database and a dashboard. Each layer can be tested independently, which keeps earthquake-resistant low-cost housing simple to maintain and extend.



Block diagram / flowchart

Technology stack

01

STAAD.Pro

Structural analysis

02

AutoCAD

Drawings

03

Shake table

Model testing

04

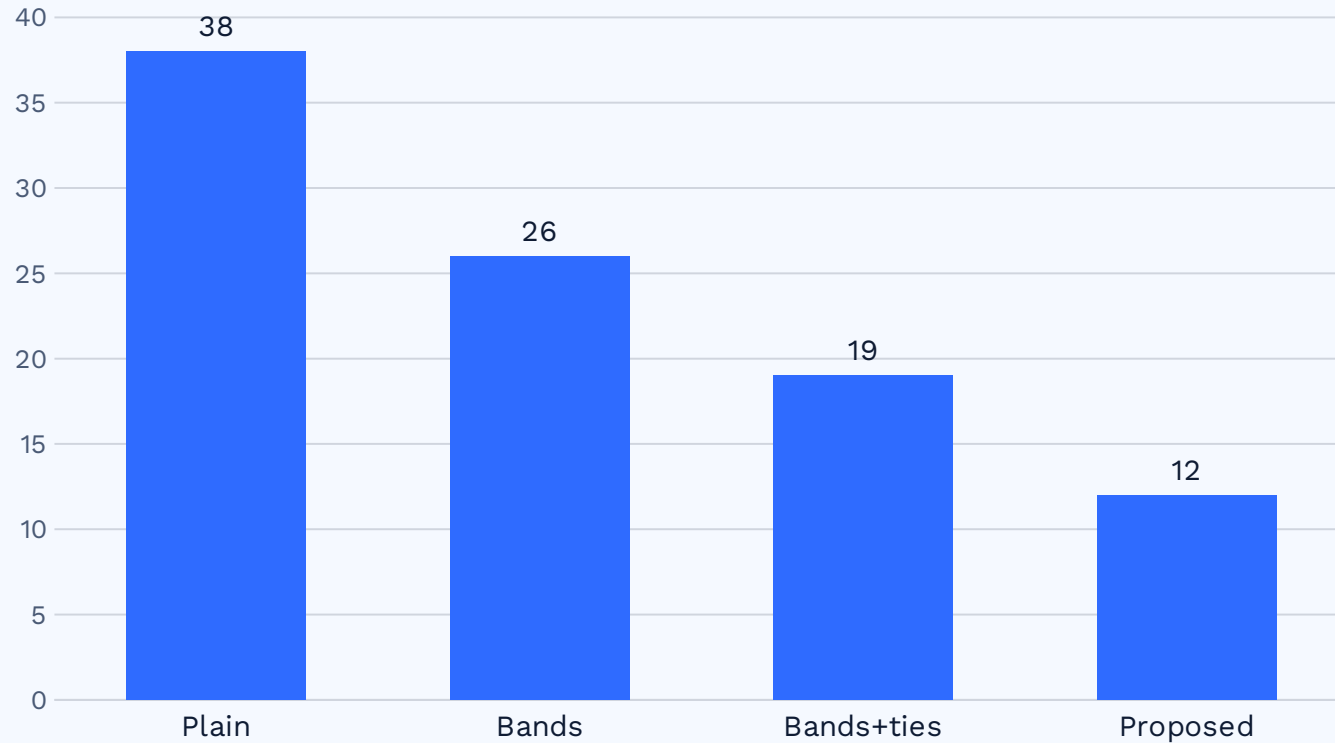
Local materials

Brick and bamboo

Project timeline



Results



Sample data for illustration — replace with your own figures.

68%

less drift than a plain wall

The prototype improved steadily over the evaluation period (sample data).

Conclusion

- ▶ Earthquake-Resistant Low-Cost Housing meets its main objectives
- ▶ Automation saves time and reduces errors for rural families and masons
- ▶ The design is simple to extend and maintain

References

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Thank you

Questions and suggestions are welcome.

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