**Project Design Phase**

**Proposed Solution Template**

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| Date | 16 April 2025 |
| Team ID | SWTID1744120590 |
| Project Name | Survey App |
| Maximum Marks | 2 Marks |

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| 1 | **Problem Statement (Problem to be solved)** | Assessing the structural health of buildings, especially in disaster-prone or aging infrastructure areas, is time-consuming, manual, and often requires expert intervention, which is not scalable or affordable for the general public. |
| 2 | **Idea / Solution description** | A web-based Structural Health Monitoring (SHM) system using Meshroom for 3D model reconstruction from uploaded videos/images, integrated with Three.js/Potree for visualization, defect detection using AI, and PDF report generation. Users can interactively assess damage and receive reports. |
| 3 | **Novelty / Uniqueness** | - End-to-end pipeline from user-uploaded media to AI-generated structural analysis and downloadable reports. - Interactive 3D model and point cloud visualization on the browser. - No need for expensive sensors or expert visits — user-driven upload and AI-based insights. |
| 4 | **Social Impact / Customer Satisfaction** | - Enables quicker post-disaster building inspections. - Empowers local governments and individuals with tools for proactive maintenance. - Increases public safety by detecting early signs of structural failure. |
| 5 | **Business Model (Revenue Model)** | - Freemium model: basic uploads and analysis are free. - Paid tier for advanced defect detection, faster processing, high-res reports, and consultation APIs for enterprises (e.g., construction firms, municipalities). - Partner with insurance and real-estate sectors. |
| 6 | **Scalability of the Solution** | - Cloud-based solution scalable with increasing user uploads. - Can be expanded globally with support for multiple languages and regional building codes. - Extendable to drones for aerial scans, and AR for real-time on-site assessments. |