Financial Modelling Report of

Structural Health Monitoring System

Project Overview

The Structural Health Monitoring System project aims to implement real-time monitoring solutions for critical infrastructure, such as bridges and buildings, using sensor technologies and data analytics to enhance safety, maintenance efficiency, and operational planning.

Assumptions

-Initial deployment will cover 10 infrastructure sites.

- Each site requires 15 sensors and a gateway device.

- Sensor units cost ₹25,365.151 each; gateway units cost ₹9,96,000 each.

- Cloud data storage and processing cost ₹8,455 per site per month.

- Expected service subscription revenue is ₹84,550 per site per month.

- 5-year financial forecast

Capital Expenditure (CAPEX)

-Sensor Costs: 10 sites 15 sensors ₹25,365 = ₹₹37,35,000

- Gateway Costs: 10 sites 1 gateway ₹101,460= ₹9,96,000

-Installation & Setup: ₹126,825 per site 10 = ₹12,45,000

– Total CAPEX = ₹59,76,000

Operational Expenditure (OPEX)

– Cloud & Data Services: 10 ₹8,455 12 months = ₹9,96,000/year

- Maintenance & Support: ₹42,275 per site/year = ₹4,15,000/year

- Personnel and Admin Costs = ₹24,90,000/year

- Total Annual OPEX = ₹39,01,000

Revenue Model

– Monthly subscription per site = ₹8,30,000

- Total Monthly Revenue = 10 ₹84,550= ₹845,505

- Annual Revenue = ₹99,60,000

Cash Flow Projection

Year 1:

- Revenue: ₹10,146,060

- OPEX: **₹397,387**

- Net Cash Flow: **₹60,59,000**

Year 2-5:

- Revenue: ₹10,146,060 annually

- OPEX: **₹3,97,873** annually

- Cumulative Net Cash Flow after 5 years: ₹30,860,934 (excluding depreciation & tax)

Break-even Analysis

Break-even point = Initial CAPEX / Annual Net Profit = ₹6,087,636 / (₹10,146,060 - ₹3,973,873) ~ 1.0 year

Conclusion / Investment Highlights

- Fast break-even (1 year)
- Scalable business model with recurring revenue
- Addresses critical safety and compliance needs in infrastructure
- Opportunity for future integration with AI-based predictive maintenance