IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 7, April 2025
Impact Factor: 7.67

Market Survey and Feasibility Study of Multipurpose Vibratory Screening Machine in Maharashtra

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Abstract: *This paper presents a focused market survey on vibratory screening machines used for material separation in the Indian state of Maharashtra. The study includes detailed analysis of current market offerings, price structures, target industries, and user feedback from agricultural and small-scale industrial sectors. It identifies challenges such as high machine costs, lack of modularity, limited power compatibility, and maintenance issues. Based on primary and secondary research, this study confirms a significant opportunity to develop a low-cost, user-friendly vibratory screening machine tailored to the needs of rural and semi-urban Maharashtra. The results validate the feasibility of a localized solution under Rs. 15,000 for separating grains, sand, and powdered materials*

Keywords: Maharashtra market, vibratory screen, low-cost machinery, SMEs, rural industries, material separation

I. INTRODUCTION

Maharashtra has a dynamic mix of agriculture and industry, with both sectors depending heavily on material separation processes. Grading and sieving are essential for quality assurance in sectors like food processing, construction, and mineral sorting. However, existing machines are often designed for high-capacity urban industries and are either cost-prohibitive or too large for small-scale users. This survey was conducted to analyze the existing supply-demand conditions, identify key requirements, and explore the feasibility of a custom-designed, multipurpose vibratory screening machine suitable for use in rural Maharashtra.

II. OBJECTIVES OF THE SURVEY

The study aimed to:

- Analyze availability and pricing of vibratory screening machines in Maharashtra.
- Understand user requirements in rural and semi-urban contexts.
- Evaluate the technical limitations of current products.
- Identify user pain points related to cost, portability, and maintenance.
- Recommend specifications for a cost-effective screening machine suited for Maharashtra.

III. METHODOLOGY

The methodology employed for this market survey was both quantitative and qualitative in nature. The research team used the following approach:

A. Desk Research

Information regarding machine specifications, price ranges, and suppliers was gathered through secondary data from websites such as IndiaMART and JustDial, as well as manufacturers' brochures and industrial directories.

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B. Field Surveys

Structured questionnaires were designed and administered in person across targeted districts. Key questions focused on price sensitivity, usability, capacity needs, and customer satisfaction with current machines. Local farmers and traders were also surveyed to get insights into product adaptability.

C. Interviews

Face-to-face interviews were conducted with machine operators, workshop managers, fabricators, and small-scale industry owners to gather in-depth insights into usability, repair frequency, and service **issues.**

D. Sample Size

The survey engaged 45 businesses across Sangamner, Nashik, Pune, Satara, Aurangabad, Kolhapur, and Jalgaon. Efforts were made to ensure representation from both urban and rural enterprises.

E. Data Analysis

Collected data was analyzed using comparative analysis, frequency distribution, correlation of key variables, and SWOT analysis. The results were tabulated and visualized to identify trends and market gaps.

III. SURVEY SCOPE AND METHODOLOGY

A. Geographical Scope

The selected districts were chosen for their active SME sectors and regional agricultural prominence. In each district, locations with grain mills, sand processing yards, and mechanical workshops were prioritized.

B. Respondent Profile

- 15 grain processing unit owners
- 12 sand/construction depot managers
- 10 local mechanical workshop owners
- 8 rural equipment resellers and fabricators Respondents had an average operational experience of over 7 years in their respective fields.

C. Data Collection Tools

- Structured field interviews using standardized questionnaires
- Price data and product listings from online platforms (IndiaMART, JustDial)
- Brochures, manuals, and technical specs provided by local manufacturers
- Informal follow-up interviews for clarification

D. Evaluation Metrics

- Cost range of machines
- Output capacity per hour
- Energy consumption and compatibility
- Downtime frequency and ease of repair
- Accessibility of spare parts
- Mesh customization and replacement ease3D

IV. EXISTING MARKET ANALYSIS

A. Product Landscape

The vibratory screening machines currently available in Maharashtra are geared towards large-scale operations, with capacities of 200–500 kg/hr and power ratings above 1 HP. Brands like VibroMax and Galaxy Sivtek dominate the

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urban industrial market but fail to penetrate rural areas due to high prices and electricity requirements. Local fabricators offer more basic models, yet these suffer from inconsistency in build quality and absence of after-sales service.

B. Market Pricing Table

Manufacturer / Vendor	Location	Capacity (kg/hr)	Price Range (INR)	Notes
Local Fabricator - Sangamner	Sangamner	80-100	38,000–45,000	Manual mesh system, low support
S.S. Machines	Nashik	200-250	75,000–1,10,000	Circular vibratory type
VibroMax India	Pune	250-300	90,000+	Industrial-grade, high power use
Kolhapur Machinery Works	Kolhapur	100-150	50,000–60,000	Imported components

C. User Preferences & Expectations

Feature/Requirement	% of Respondents Supporting
Cost under Rs. 15,000	82%
Single-phase 0.5–1 HP motor	75%
Replaceable screen mesh options	70%
Compact, portable frame (<30 kg)	68%
Locally serviceable parts	80%

These findings suggest that while advanced features exist in the premium segment, the market for affordable, simplified machines remains underserved.

V. OBSERVATIONS

The following table summarizes key observations gathered during the market survey:

Observation Category	Key Findings	Percentage of Respondents (%)
Machine Affordability	Preferred cost below ₹15,000	82%
Electricity Supply Compatibility	Require single-phase operation	70%
Maintenance and Service Delays	Reported delays over 1 week for service	53%
Preference for Simplicity	Favor simple toggle/manual mechanisms	67%
Knowledge of Product Variants	Unaware of modern screen options or modular designs	45%

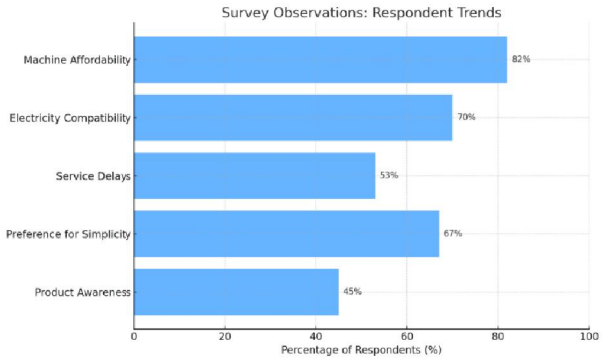

Figure 1: Survey observation Chart

Additionally, the following pie chart illustrates the distribution of the most important factors that influence purchasing decisions among respondents:

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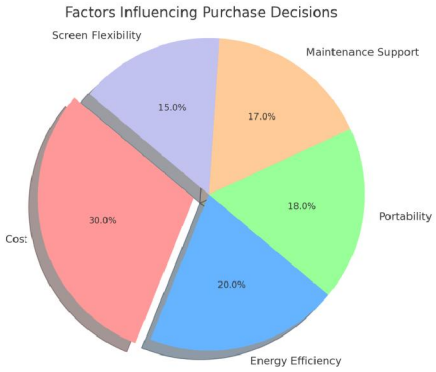

Figure 2: Factors Influencing Purchase Decisions (Pie Chart)

VI. MARKET GAP AND FEASIBILITY OPPORTUNITY

Requirement	Current Market Availability	Proposed Solution Advantage
Low-Cost Screening Machine	Rare below ₹35,000	Affordable under ₹15,000
Modular Screen Options	Mostly fixed screen designs	Interchangeable mesh options
Rural Power Compatibility	High power/3-phase requirements	Operable on 0.5 HP single-phase motor
Portability	Bulky industrial equipment	Compact wheeled frame < 30 kg
Local Maintenance Feasibility	Spare parts not readily available	Standardized components and open design

These enhancements to the observations and market gap sections provide visual structure and better comparison, aiding decision-makers in identifying feasibility.

VII. CONCLUSION

The market survey strongly supports the development of a locally manufactured, low-cost, multipurpose vibratory screening machine tailored for Maharashtra's rural and semi-urban needs. This machine would address pressing challenges of affordability, usability, maintenance, and adaptability. By closing the gap between industrial standards and local realities, the proposed design holds the potential to transform productivity in agriculture and micro-industry sectors.

VIII. ACKNOWLEDGEMENT

We extend our gratitude to all researchers and industry experts whose work has contributed to the development of survey. We also appreciate the support of our institution in facilitating this study.

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