

PROJECT PROFILE ON ELECTRONIC WEIGHING SCALE

- 1. Product:-** **Electronic Weighing Scale**
- 2. Production capacity:-** **Qty. 1800 Nos**
(Value Rs 1,80,00,000)
- 3. Month & year of Preparation:-** **2009–2010**
- 4. Prepared by:-** **MSME-Development Institute**
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1. INTRODUCTION:

Electronic weighing systems are used in industries and business establishments for weighing and segregating materials accurately for process sales. The main advantages of an electronic weighing system when compared with mechanical weighing systems are:

- (a) Compactness and small size independent of capacity.
- (b) Ruggedness and high dependability.
- (c) High speed of response and rapid weighing.
- (d) Good accuracy.
- (e) Excellent flexibility to monitor multiple loads.
- (f) Analog and digital with print-out facility remote indication and parallel display.
- (g) Online processing through computer.

The electronic weighing system comprises the basic load cell, suitable signal conditioners and output recorders/ indicators giving both the analog and digital output for further processing. The signals from the load cell are amplified and fed to analog/digital converter, which provide an output in the digital format for display/ printing/processing etc. The strain gauge based load cell is the most popular weight transducer used in the electronic weighing system.

2. MARKET

The total production in industrial electronic and control instrumentation is showing growth rate every year. This product requires a good marketing set up duly backed by after sales service facilities. If the price of the weighing scales is brought down and good after sales facility made available, there will be sufficient demand for this item.

3. BASIS AND PRESUMPTIONS

- (i) The basis for calculation of production capacity has been taken on a single shift of 8 hrs each per day basis on 75% efficiency.
- (ii) The maximum capacity utilization on single shift basis for 300 days a year. The Capacity Utilization of the unit is taken as 95% for financial analysis.

(iii) The salaries and wages, cost of raw materials, utilities, civil construction etc. are based on the prevailing rates in and around Kerala. These cost factors are likely to vary with time and location.

(iv) The cost of machinery and equipments refer to a particular make/model and prices are approximate.

(vi) The project preparation cost etc. whenever required could be considered under pre-operative expenses.

(vii) The essential production machinery and test equipment required for the project have been indicated. The unit may also utilize common test facilities available at Electronics Test and Development Centers (ETDCs) and Electronic Regional Test Laboratories (ERTLs) set up by the State Governments and STQC Directorate of the Department of Information Technology, Ministry of Communication and Information Technology, to manufacture products conforming to Bureau of Indian Standards.

4. IMPLEMENTATION SCHEDULE

The major activities in the implementation of the project have been listed and the average time for implementation of the project is estimated at 12 months:

Sl.No.	Name of Activity	Period in Months (Estimated)
1.	Preparation of project report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial institutions	3
4.	Plant and Machinery:	
(a)	Placement of orders	1
(b)	Procurement	2
(c)	Power connection/ Electrification	2
(d)	Installation/Erection of machinery/Test Equipment	2
5.	Procurement of raw materials	2
6.	Recruitment of Technical Personnel etc.	2
7.	Trial production	11
8.	Commercial production	12

Notes

1. Many of the above activities shall be initiated concurrently.
2. Procurement of raw materials commences from the 8th month onwards.
3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months.

5. TECHNICAL ASPECTS

I. Manufacturing Process

The manufacturing process involves the assembly of load cell, electronic circuits and electro mechanical hardware. Subsequently, the electronics assembly-the ICs, transistor, diodes, resistors, capacitors transformer, coils, relays, potentiometers are assembled on PCBs as per design.

The assembled PCBs are tested for performance. Subsequently the electronics assembly along with electromechanical assembly, hardware such as connectors/switches, terminals display, meters are assembled and housed in a metallic / fiber / plastic case with an appealing front panel. Finally the assembled unit is calibrated and tested as per the design specification.

II. QUALITY CONTROL & STANDARDS FOLLOWED

1. IS 9281:1981

Weighing range	Upto 10 kgs.
Accuracy	0.02%
Output	Digital display (Fluorescent)
Power supply	230V, AC, 50 Hz

III. PRODUCTION ENVISAGED

Quantity	Value (Rs.)
1800 Nos.	Rs. 1,80,00,000/-

IV. Motive Power

5 KVA (approx.)

V. POLLUTION CONTROL

The Govt. accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have an environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the Montreal Protocol in Sept. 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFC), Carbon Tetrachloride, Halons and Methyl Chloroform etc. need to be phased out immediately with alternative chemicals/solvents. A notification for detailed Rules to regulate ODS phase out under the Environment Protection Act, 1986 have been put in place with effect from 19th July 2000.

The following steps are suggested which may help to control pollution in electronics industry wherever applicable

In electronic industry fumes and gases are released during hand soldering / wave soldering/Dip soldering, which are harmful to people as well as environment and the end products. Alternate technologies may be used to phase out the existing polluting technologies. Numerous new fluxes have been developed containing 2-10% solids as opposed to the traditional 15-35% solids.

(ii) Electronic industry uses CFC, Carbon Tetrachloride and Methyl Chloroform for cleaning of printed circuit boards after assembly to remove flux residues left after soldering, and various kinds of foams for packaging.

Many alternative solvents could replace CFC-113 and Methyl Chloroform in electronics cleaning. Other Chlorinated solvents such as Trichloroethylene, Perchloroethylene and Methylene Chloride have been used as effective cleaners in electronics industry for many years. Other organic solvents such as Ketones and Alcohols are effective in removing both solder fluxes and many polar contaminants.

VI. ENERGY CONSERVATION

With the growing energy needs and shortage coupled with rising energy cost, a greater thrust in energy efficiency in industrial sector has been given by the Govt. of India since 1980s. The Energy Conservation Act, 2001 has been enacted on 18th August 2001, which provides for efficient use of energy, its conservation and capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical energy:

- i) Adoption of energy conserving technologies, production aids and testing facilities.
- ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.
- iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and de-soldering stations.
- iv) Periodical maintenance of motors, compressors etc.
- v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps wherever possible etc.

7. FINANCIAL ASPECTS

A. Fixed Capital

(I) Land and Building

Built up area	200 sq. mtr
Office/ Stores	50 sq. mtr
Factory	150 sq. mtr
Rent (per month)	10,000/-

(II) Machinery and Equipments

Sl. No.	Description	Ind./ Imp.	Qty.	Amount (Rs.)
1	Bench Drilling machine ½”	Ind	1	7,000
2	Digital Multi Meter (3½ digits)	Ind	3	27,000

3	Oscilloscope (0-60 MHz)	Ind	1	60,000
4	IC Tester/EEPROM Programmer	Ind	1	30,000
5	Digital LCR Meter	Ind	1	10,000
6	Load Cell Simulator (Imported)	Imp	1	40,000
7	Portable Grinder	Ind	1	8,000
8	Power Supply (0-30V, 2A)	Ind	2	10,000
9	Standard Weights Brass	Ind	LS	15,000
10	Multimeter (Analog)	Ind	3	1,500
11	UV (Eraser)	Ind	1	4,000
12	Variacs (4A)	Ind	2	8,000
	Total			2,20,500
13	Electrification charges @ 10% of machinery and equipments			22,050
13	Office Furniture, Working tables and Equipments			80,000
14	Tools, Dies and Equipments			30,000
	(ii) Total cost of pl & M/c			3,52,550
	(iii) Pre operative expenses			30,000
	Total fixed cost			3,82,550

B. WORKING CAPITAL (PER MONTH)

(i) Staff & Labour

Sl.No.	Designation	No.of persons	Salary/Month (Rs.)	Total salary per month (Rs.)
1	Accountant	1	8000	8,000
2	Production Engineer	1	10000	10,000
3	Manager	1	12000	12,000
4	Marketing Assistant	2	5000	10,000
5	Peon	1	3000	3,000
6	Semi Skilled Workers	2	3500	7,000
7	Skilled Workers	3	6000	18,000
8	Steno/typist	1	4000	4,000
9	Watchman	1	3000	3,000
	Total			75,000
	Perquisites@ 15%			11,250
	Total			86,250

(ii) Raw Material

Sl. No.	Description	Ind/Imp	Qty(nos)	Amount (Rs.)
1	Cabinet/Housing (Metal)	Ind	150	60,000
2	Capacitors	Ind	300	16,500
3	Fluorescent display	Imp.	150	1,65,000
4	Integrated circuits	Imp.	450	1,57,500
5	Load cell (strain gauge)	Imp.	150	4,50,000
6	Mechanical hardware assembly	Ind	150	75,000
7	Noise Filter	Imp.	150	30,000
8	PCB	Ind	150	52,500
9	Rectifier	Imp.	150	19,500
10	Resistors (Diodes and switches)	Ind	LS	25,000
11	Transformer	Ind	150	19,500
12	Transistors	Ind	300	39,000
13	Wires and cables. Connectors, consumables, Packing materials, etc.	Ind		30,000
Total				11,39,500

(iii) Utilities per month

Sl. No.	Description	Amount (Rs.)
1	Power	8000
2	Water	500
Total		8,500

(iv) Other Contingent Expenses (per month)

Sl. No.	Description	Amount (Rs.)
1	Rent	10,000
2	Postage and stationery	5,000
3	Telephone /Telex/Fax	4,000
4	Repair & maintenance	5,000
5	Transport and Conveyance charges	8,000

6	Advertisement and Publicity	20,000
7	Insurance	3,000
8	Miscellaneous expenditure	5,000
	Total	60,000

Total recurring expenditure per month Rs. 12, 94,250

Working Capital (3 months) Rs 38, 82,750/-

C. TOTAL CAPITAL INVESTMENT

(i)	Fixed capital	3,82,550
(ii)	Working capital for 3 months	38,82,750
	Total	42,65,300

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)

Sl. No.	Description	(Rs.)
1	Total recurring expenditure	1,55,31,000
2	Depreciation on m/c & Equipments @ 10%	22,050
3	Depreciation on office furniture @ 20%	16,000
4	Depreciation on tools ,jigs and fixture @ 25%	7,500
5	Interest on capital investment @ 16%	6,82,448
	Total	1,62,58,998

(II) Turnover per annum

Item	Qty (Nos)	Rate/Unit (Rs.)	Total sales (Rs.)
Electronic weighing scales upto 10 kgs	1800	10,000	1,80,00,000

(III) Profit per annum (Before Taxes)

Turn over per annum – Cost of production per annum = Rs
17,41,002,

$$\begin{aligned}\text{Profit ratio} &= \frac{(\text{profit/annum}) \times 100}{(\text{Sales/annum})} \\ &= 9.6 \%\end{aligned}$$

$$\begin{aligned}\text{Rate of return} &= \frac{\text{Profit/annum} \times 100}{\text{Total Capital investment}} \\ &= 40.81 \%\end{aligned}$$

D. Break-even Point

Fixed Cost per annum

Rent	1,20,000
Depreciation on m/c & Equipments @ 10%	22,050
Depreciation on office furniture @ 20%	16,000
Depreciation on tools ,jigs and fixture @ 25%	7,500
Interest on capital investment @ 16%	6,82,448
Insurance	36,000
40% Salaries and wages	4,14,000
40% other contingent expenses (excluding rent & Insurance)	2,25,600
Total	15,23,598

Break-even Point

$$\begin{aligned}&\frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}} \\ &= 47 \%\end{aligned}$$

11. FINANCIAL ANALYSIS

COMPUTATION OF WORKING CAPITAL REQUIREMENT

No.	Particulars	1 st year	2 nd year	3 rd year	4 th year	5 th year
1	Raw materials	3418500	4216380	4848880	5576280	6412800
2	Power Charges	25500	29330	33750	38830	44680
3	Salaries & Wages	258750	297580	342230	393580	452630
4	Miscellaneous Expenses	180000	207150	238200	273780	314430
	Total	3882750	4750440	5463060	6282470	7224540

PROJECT PERFORMANCE & PROFITABILITY STATEMENT

	1 st	2 nd	3 rd	4 th	5 th
No. of working days	325	325	325	325	325
Installed capacity	1800	1800	1800	1800	1800
Utilization	95	95	95	95	95
Annual Sales	17100000	20862000	24111000	27873000	32148000
Net Profit	2020141	2563289	3250526	4066878	4955952
Cost of production					
Recurring Expenditure	14391500	17691200	20345100	23396600	26904900
Depreciation on machinery & equipment @ 10%	24260	21830	19650	17690	15920
Depreciation on office equipment & furniture @ 20%	16000	12800	10240	8200	6560
Depreciation on tools @ 25%	7500	5630	4220	3170	2370

Interest on total capital investment @ 16%	640599	567251	481264	380462	262298
Total	15079859	18298711	20860474	23806122	27192048

BREAK EVEN ANALYSIS

Fixed cost per annum	1st	2nd	3rd	4th	5th
Depreciation on machinery & equipment @ 10%	24260	21830	19650	17690	15920
Depreciation on office equipment, furniture @ 20%	16000	12800	10240	8200	6560
Depreciation on tools @ 25%	7500	5630	4220	3170	2370
Interest on total capital investment @ 16%	640599	567251	481264	380462	262298
40% salary & wages	414000	476120	547560	629720	724200
40% of other contingent expenses and utilities excluding rent and insurance	680400	782480	900000	1035240	1190760
Total fixed cost	1782759	1866111	1962934	2074482	2202108
Net Profit	2020141	2563289	3250526	4066878	4955952
Break-even point = $\frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{net profit}}$	46.88%	42.13%	37.65%	33.78%	30.76%

CASH FLOW STATEMENT

No.	Particulars	1 st year	2 nd year	3 rd year	4 th year	5 th year
A	Cash in Flow					
	i) Promoters capital	1,265,300	0	0	0	0
	ii) Term Loan	3,000,000	0	0	0	0
	iii) Profit before interest and tax	2,660,740	3,130,540	3,731,790	4,447,340	5,218,250
	iv) Depreciation	47,760	40,260	34,110	29,060	24,850
	Total (A)	6,973,800	3,170,800	3,765,900	4,476,400	5,243,100
B	Cash Out Flow					
	i) Preliminary expenses	30,000	0	0	0	0
	ii) Capital Expenditure	352,550	0	0	0	0
	iii) Increase in W.C	3,850,750	857,750	706,800	815,300	936,000
	iv) Decrease in Term Loan	425,789	499,137	585,124	685,926	804,024
	v) Interest	640,599	567,251	481,264	380,462	262,298
	vi) Income-tax					
	vii) Drawings	1,642,112	1,236,662	1,986,712	2,590,712	3,234,778
	Total (B)	6,941,800	3,160,800	3,759,900	4,472,400	5,237,100
C	Surplus (A-B)	32,000	10,000	6,000	4,000	6,000

ADDITIONAL INFORMATION

- (a) The Project Profile may be modified/ tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the locational characteristics, wherever applicable.
- (b) The Electronics Technology is undergoing rapid strides of change and there is need for regular monitoring of the national and international technology scenario. The unit may, therefore, keep abreast with the new technologies in order to keep them in pace with the developments for global competition.
- (c) Quality today is not only confined to the product or service alone. It also extends to the process and environment in which they are generated. The ISO 9000 defines standards for Quality Management Systems and ISO 14001 defines standards for Environmental Management System for acceptability at international level. The unit may therefore adopt these standards for global competition.
- (d) The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per bank's discretion.

12.ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS

1. M/s. Agronic Instrument (P) Ltd.
201, Shiva-Shakti Industrial Estate,
Mumbai-86.

2. M/s. Bergen Associates Pvt. Ltd.
1082, Sector 27-B,
Chandigarh-19.

3. M/s. BPL (India) Ltd.
84, M. G. Road, Bangalore-560001.

4. M/s. Circuit Aids
Inc.No. 5, Ranganathapura Magadi Road,
Bangalore-79.

5. M/s. Navanidhi Electronics (P) Ltd.
1-60/1 Snehapuri, Nacharaam,
Hyderabad-7

6. M/s. Noble Electronics
354, Lajpat Rai Market,
Delhi-6.

7. M/s. Peico Electronics and Electrical
Ltd.
Shivasagar, Estate, Block-A,
Dr. Annie Besant Road,
Mumbai-12.

8. M/s. Quality Machine Tools
34, J.C. Road, VISL Building,
Bangalore-2.

9. M/s. Swastic Machine Tools
4, Lata Chambers,
Nashik-422 002.

10. M/s. Sysco Associates
30/106 (New No.234)

11th Main, Malleswaram,
Bangalore-3

ADDRESSES OF RAW MATERIAL SUPPLIERS

1. M/s. Amar Radio Corpn.
11/1, Thiglar Periyanna Lane,
SJP Road, Bangalore-2.

2. M/s. Applied Electronics Ltd.
A-5, Wagle Industrial Estate,
Thane-4,
(Mumbai)

3. M/s. Bakumbhai Ambalal
Electronics Dept.
Kaiser-T-Hind Building,
Ballard Estate, Mumbai-38.

4. M/s. Bangalore Electronics
No.124, Sadarpatrapa Road,
Bangalore-2.

5. M/s. Electronics Trade and
Technology Dev.
15/48, Malcha Marg,
New Delhi-21.

6. M/s. General Electronics
19, 5th Floor, Tardeo Air
Conditioned Market, Mumbai-34.

7. M/s. Inde Associates
16, Rest House Crescent,
Off Church Street,
Bangalore-1.

8. M/s. Interco Ltd.
456, Alexandra Road,
14.00NOL Bldg.
Singapore-0511.

9. M/s. Jairamadas and Sons P.Ltd.
Mittal Towers, M.G.Road,
Bangalore.

10. M/s. Micropack Ltd.
Plot 16,Jigami Indl.Area,
Anekal Taluk,
Bangalore District-560 002.

11. M/s. Namtech Systems(P)Ltd.
35, Dacosta Square,
St.Thomas Town, Bangalore-84.

12. M/s. OEN Connectors Ltd.
Vyattila, PB No.2, Cochin-19.

13. M/s. Rosemound Ine
P.O. Box 35129, Minneapolis,
MN 56435(612) 941-5560, USA

14. M/s. Saini Electronics
Pushapadant Nivas,
3, Chuman Lane,
Dr. D. Bhadkamkar Marg.
Mumbai-7.

15. M/s. Southern Electronics
No.113,Sadarpatrappa Road,
Bangalore-2.

16. M/s. Systronics
202-1206, Harsha House,Near Milan Cinema, Karampura Road, New Delhi-
110015

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