PROJECT PROFILE ON DIGITAL MUSCLE STIMULATOR (PHYSIOTHERAPY EQUIPMENT)

1. Product:- **Digital Muscle Stimulator (Physiotherapy Equipment)**

2. Production capacity:- **Qty. 6000 Nos**

(Value Rs 1,26,00,000)

3. Month & year of Preparation:- **2009 – 2010**

4. Prepared by:-

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1. Introduction:

Physiotherapy is a health care profession which views human movement as central to health and well being of the individuals. Physiotherapy treatments are based on the stimulation of natural healing mechanism without the use of drug or surgery so as to restore the patient to optimum functional ability. It also teaches the way to avoid re-occurrence of problems.

Electronic digital Muscle Stimulator is equipment used in physiotherapy treatment that directs small pulses of electricity to specific nerves. The purpose is to reduce the sensitivity of nerve endings in the spinal cord, thereby closing the pain 'gates.' In an electronic muscle stimulator circuit, the equipment stimulates nerves of that part of body where electrodes are attached. It is useful to relieve headache and muscle pain and revive frozen muscles that impair movement.

2. Market:

During the year 2008-09, the total production in the Instrumentation & industrial Electronics sector in the country is estimated to be Rs. 12,740 crore, as against Rs. 11,910 crore in the fiscal year 2007- 08, registering a growth of 7 per cent in 2008-09 as against 14.5 per cent in 2007-08. Industrial Electronics/Automation Technologies form a critical component of industrial sectors like Steel, Mining, Power, Textile, Cement, Railways and other transportation sectors. The players engaged in manufacturing of these equipments in the country are able to meet this demand generally with latest state-of-art technologies.

There are a good number of Small and Medium Enterprises (SMEs) who also cater to the medium and small application segments. Many SMEs produce electronic products based on the latest technologies and many of these units are able to do so through technologies developed indigenously – either in-house or procured from Indian R&D organizations.

Govt of India is promoting the indigenous production of latest Electronic equipments. Demand for Medical Electronic equipments are increasing with the increase in the medical infrastructure and the general health awareness level. The demand for personnel medical care equipments are also increasing

rapidly due to various reasons. In such a scenario, the demand for products like Electronic Muscle Stimulator is going to increase in the coming years. There are only a few MSMEs manufacturing these types of products in the country. There is enough scope for few more MSMEs in this sector. This product with all the advanced features likes digital display, Eectronic timer and with after sale service support has enough scope in the domestic market as well as in the export front also.

* As per the data available in the Ministry of IT

3. Basis & Presumptions:

i) The basis for calculation of production capacity has been taken on a single shift of 8 hrs each per day basis on 70% efficiency.

(ii) The maximum capacity utilization on single shift basis for 300 days a year. The Capacity Utilization of the unit is taken as 100% 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 break even point percentage indicated is of full capacity utilization

(viii) Interest on term and working capital loan must be preferably on current rate. Otherwise, the rate of interest on an average may be taken as 13%. The rate may vary depending upon the policy of the financial institutions/agencies from time to time

(ix) 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:

SI.No	Name of the activity	Period in months (Estimated)
1.	Preparation of project report	1
2.	Registration & other formalities	1
3.	Sanction of loan by financial institution	3
4.	Plant & machinery**:**	
5.	Placement of orders	1
6.	Procurement	2
7.	Electrification & installation	2
8.	Procurement of raw materials	2
9.	Recruitment of technical personnel	2
10.	Trial operation	11^{th} month
11.	Commercial operation	12^{th} month

Note: Many of the above activities shall be initiated concurrently,

When imported equipments are required, the implementation period of the project may vary from 12 months to 15 months,

Procurement of raw materials commences from the 8^{th} month onwards.

5. Technical aspects:

The system comprises mainly three units: Four channel/Two channel muscle stimulator, timer and display units. The muscle stimulator contains integrated circuits wired as a multivibrator to generate about 80Hz pulses. Timer circuit is made by a timer IC .The LCD driver circuit is attached with the stimulator unit.

I. Technical Specification

Output indication by Digital LCD meter

Digital time 0-99 minute, preset at 15 minute, Up-Down-Start operation with timer, Buzz after present time completed

Five types of currents, Galvanic, Interrupted Galvanic, Faradic, Surged faradic and Tens.

Output voltage: 0-30 volt & output current 100 mA.

II. Process:

The incoming raw materials and components are tested for required quality and specifications. The components are formed, shaped and soldered on pre-designed printed circuit boards and tested for desired performance. The tested PCBs are fixed in the plastic enclosure, LCD display unit is fixed, other controls are connected and connection is made through proper wiring. The batteries are connected, all mechanical assemblies are completed and the whole unit is checked for required performance by measuring the amplitude and width of the pulse generated. Finally the tested products are packed with attractive carton for dispatch to dealers/customers.

III. Production Capacity per annum:

Quantity	Four channel Muscle Stimulator	3000 Nos
	Two channel Muscle stimulator	3000 Nos
	Value	**Rs., 1,26,00,000**

Motive power required 3 KVA

IV. Pollution Control:

Government 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 September 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 – 33% solids. 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.

V. 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:

- Adoption of energy conserving technologies, production aids and testing facilities.,
- Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation,
- Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and disordering stations,

- Periodical maintenance of motors, compressors, etc.

- 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.

6. Financial Aspects

A) Fixed Capital

i) Land and Building

Built up Area	200 sq.mtr,
Office, stores	50 sq.mtr.
Assembly and Testing	150 sq.mts.
Rent payable per annum	Rs.1,20,000

ii) Machinery & Equipments

S.No.	Description	Unit	Cost (Rs)
1	Digital Storage Oscilloscope 100 MHz	1	60,000
2	Temp Controlled Soldering Unit	3	21,000
3	LCR Meter (programmable)	1	35,000
4	Digital Multimeter ,4 ¾ Digit	1	16,000
5	Analog Multimeter	2	2,000
6	Tool Kit	2	10,000
7	Electronic Screw Driver & Screw Feeder	4	25,000
8	Combined Soldering De soldering Station	1	12,000
9	High speed Mini Drill set	1	8,000
10	Drilling Machine	1	5,000
11	Personal Computer with UPS and Printer	2	70,000
		Total	2,64,000
13	Electrification charges @ 10% cost of machinery & equipment		26,400

14	Cost of office furniture/test bench	1,00,000
15	Pre Operative expenses	50,000
	Total fixed cost	**4,40,400**

B) Working Capital

Recurring expenditure per month

i) Staff & Labour per month

S.No.	**Designation**	**No.of person**	**Total salary/month**
1	Technical Manager	1	12,000
2	Technical Staff	3	21,000
3	Semi skilled worker	2	8,000
4	Office Assistant/Peon/Unskilled	3	7,500
5	Accountant	1	4,500
6.	Marketing Service Support Staff	2	6,000
		Total	59,000
	Perquisites @ 15%		8,850
		Total	**67,850**

ii) Raw Materials p.m

S.No.	**Description**	**Ind/imp**	**Qty**	**Value(Rs.)**
1.	LCD driver unit	Ind/Imp.	500	1,50,000
2.	Injection moulded plastic case (two channel)	Ind	250	1,80,000
3.	Injection moulded plastic case (four channel	Ind	250	50,000
4.	Printed circuit boards	Ind	500	40,000
5.	Electronic components like IC's transistors, capacitors, resistors& transformers other Electronic	Ind/Imp	LS	2,00,000

	components			
6.	Connecting cable, socket, pin, fuse, fuse holder ,probes & mechanical parts	Ind	LS	75,000
7.	Packing material	Ind	500	5,000
8.	Consumables –Solder & flux etc.	Ind	Ls	7,500
9.	AC adaptors	ind	500	60,000
10.	Battery		500	10,000
			Total	**7,77,500**

iii) Utilities

1	Power	5,000
2	Water	1,000
	Total	**6,000**

iv) Other contingent expenses per month

S.No.	**Description**	**Amount(Rs.)**
1	Rent	10,000
2	Postage & Stationery	2,000
3	Telephone	3,000
4	Repair & Maintenance	2,000
5	Transport & Conveyance	15,000
6	Advertisement & Publicity	10,000
7	Insurance	1,000
8	Miscellaneous expenditure	4,000
	Total	**47,000**

Total recurring expenditure/month **8,98,350**
Working capital (3 months) **26,95,050**

C	**Total Capital Investment**	**Rs**
	Fixed Capital	4,40,400
	Working Capital (3 months)	26,95,050
	Total	**31,35,450**

D	**Financial analysis**			
1	**Cost of production/annum**			**Rs**
	Total recurring expenditure			1,07,80,200
	Depreciation on machinery & equipment @ 10%			26,400
	Depreciation on office equipment & furniture @ 20%			20,000
	Interest on total capital investment @ 12%			4,07.609
	Total			**1,12,34,209**
2	**Turnover per annum**			
	Item	Qty	Rate	
	Four channel Muscle Stimulator	3000 Nos	2600	78,00,000
	Two channel Muscle stimulator	3000 Nos	1600	48,00,000
			Total turnover	**1,26,00,000**
3	**Profit per annum(Before taxes)**			**13,65,791**
4	**Net profit ratio = Net profit x 100 / Total Turnover**			**10.8%**
5	**Rate of Return = Net profit x 100 / Total Capital Investment**			**43.6%**
6	**Break-even point**			
	Fixed cost per annum			**Rs**
1	Rent			1,20,000
2	Depreciation on machinery & equipment @ 10%			26,400
3	Depreciation on office equipment, furniture @ 20%			20,000
4	Interest on total capital investment @ 13%			4,07,609
5	40% salary & wages			3,25,680
6	40% of other contingent expenses excluding rent and insurance			1,72,800
	Total fixed cost			**10,72,489**
	Break-even point = Fixed cost x 100 / Fixed cost + Net Profit			**44%**

Additional Information:

- The project may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the locational characteristics, wherever applicable,

- The technology in this sector is undergoing rapid strides of charge and there is a need for regular monitoring of the national and international technology scenario. The unit, may therefore, keep abreast with new technologies in order to keep them in pace with the developments for global competition,

- 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 system and ISO 14001 defines standards for environmental management system for acceptability at international level. The unit may therefore adopt these standards for global competition,

- The margin money recommended is 25% of the working capital at an average. However the percentage of margin money vary as per bank's discretion,

NAMES AND ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS

For LCD Driver /Printed circuit boards/Electronic components

M/s Component and Devices
Near Medical trust Hospital,
Manikkiri Cross Road
Ernamkulam,Kerala
Phone : 91-484 2353150,2382250
E mail : component @md3.vsnl.net.in

M/s Kerala sales corporation
Post Office Road,
Chettiyagadi. Thrissur
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Phone : 0487 2420894
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M/s Eltek trans-Equipment
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