

Electronic Burglar Alarm System for Automobiles

PRODUCT CODE (ASICC)	: 79339
QUALITY AND STANDARDS	: N.A.
PRODUCTION CAPACITY	: Qty. : 1500 Nos. (per annum) Value : Rs. 1987500
YEAR OF PREPARATION	: 2002–2003
PREPARED AND UPDATED BY	: Small Industries Service Institute Rajaji Nagar Industrial Estate Bangalore – 560 044. And Office of the Development Commissioner (Small Scale Industries), Electronics and Electrical Division, 7th Floor, Nirman Bhavan, New Delhi – 110011

INTRODUCTION

The Burglar alarm gives an alarm sound if any attempt is made to steal the automobiles. The automobile alarm can be designed in different ways depending upon the type of the automobile and place where it is to be fixed in the automobile.

The alarm accepts signals from a variety of sources including special sensors and the standard switches in a car such as the door and ignition contacts. The circuit consists of timers triggering circuit, delay and control circuits which provides relay out-put that controls an acoustic transponder (loud speaker or buzzer). A switch is used for all control functions like setting alarm, energizing time etc.

MARKET POTENTIAL

The burglar alarm is used mainly in automobiles to avoid stealing. They are marketed by manufacturers, dealers and service centres for automobiles as additional automobile accessory for providing safety to the automobiles. There are few units manufacturing burglar alarm for automobiles in the country and in the State. Present manufacturers of the product are generally having tie up with branded automobile manufacturing industry and dealers of automobile parts. The cost of alarm depends on the type, features and appearance of the product.

With high quality and competitive price there is good scope for Burglar alarm for automobiles. The plant and

machinery and raw materials required for the manufacture of Burglar Alarm are available indigenously.

BASIS AND PRESUMPTIONS

- (i) The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency.
- (ii) The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the utilization is 60% and 80% respectively. The unit is expected to achieve full capacity utilization from the third year onwards.
- (iii) The salaries and wages, cost of raw materials, utilities, rents, etc. are based on the prevailing rates in and around Bangalore. These cost factors are likely to vary with time and location.
- (iv) Interest on term loan and working capital loan has been taken at the rate of 16% on an average. This rate may vary depending upon the policy of the financial institutions/agencies from time to time.
- (v) The cost of machinery and equipments refer to a particular make/model and prices are approximate.
- (vi) The break-even point percentage indicated is of full capacity utilization.
- (vii) The project preparation cost etc. whenever required could be considered under pre-operative expenses.
- (viii) 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 Centres (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.

IMPLEMENTATION SCHEDULE

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

<i>Sl. No.</i>	<i>Name of Activity</i>	<i>Period in Months (Estimated)</i>
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.

TECHNICAL ASPECTS

Process of Manufacture

The components and materials are inspected for any defects, before they are inspected for any defects, before they are released for production. In the production line, the components are shaped and formed using appropriate tools and assembled on PCB and soldered. The assembled PCB's are tested individually for desired performance.

The PCB's transformer, electro-mechanical components are fixed in a small cabinet and inter-connected as per design. The connections are made to sensors, loud speakers, buzzers as per the design. The whole system is tested for the desired performance and packed well for dispatch.

Quality Control and Standards

Input power	12 Volts DC
Time delay (for alarm)	17 seconds
Total alarm time	65 seconds

Production Capacity (per annum)

Quantity	Value (Rs.)
1500 nos.	1987500

Motive Power 5 KVA.

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:

- i) 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.

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 desoldering 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

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building

1. Built up area	200 Sq. mts.
2. Office, Stores	50 Sq. mts.
3. Assembly and testing	150 Sq. mts.
4. Rent payable per annum	Rs. 60,000

(ii) Machinery and Equipments

Sl. No.	Description	Ind./ Imp.	Qty.	Total (Rs.)
1.	Oscilloscope (50MHz)	Ind.	1	50,000
2.	Function Generator	Ind.	1	9,000
3.	LCR-Q Meter	Ind.	1	14,000
4.	Power Supplies (30V, 5A)	Ind.	2	10,000
5.	Digital Multimeter (4½ Digit)	Ind.	1	8,000
6.	Analog Multimeter	Ind.	2	4,000
7.	Testing console	Ind.	1	25,000
	Total			1,20,000

(iii) Other Fixed Assets

1.	Office equipments, furniture and working table etc.	30,000
2.	Tools, jigs and fixtures, soldering iron/station etc.	10,000
3.	Electrification charges @ 10% of the cost of plant and machinery	12,000
4.	Pre-operative Expenses	10,000
	Total	62,000

(iv) Total Fixed Capital (ii) + (iii) Rs. 182000

B. Working Capital (per month)

(i) Personnel Administration and Supervisory

Sl. No.	Designation	No.	Salary (Rs.)	Total (Rs.)
1.	Manager	1	5,000	5,000
2.	Sales and Service Engineer	1	3,500	3,500

Sl. No.	Designation	No.	Salary (Rs.)	Total (Rs.)
3.	Accountant	1	2,500	2,500
4.	Clerk/Typist	1	2,000	2,000
5.	Peon/ Watchman	1	2,000	2,000
6.	Skilled Workers	2	3,000	6,000
7.	Un-skilled workers	1	2,000	2,000
	Total			23,000
	Add Perquisites @ 15% of salary			3,450
	Total			26,450
	or Say			6,500

(ii) Raw Material Requirement (per month)

Sl. No.	Particulars	Ind./ Imp	Cost/ unit (Rs.)
1.	IC's Timer, Regulator etc.	Ind.	100
2.	Transistors, Diodes, and LEDs etc.	Ind.	150
3.	Resistors, capacitors, Presets, etc.	Ind.	100
4.	Relays and buzzer	Ind.	100
5.	PCB's	Ind.	50
6.	Electro-mechanical components like switches, knobs, sockets, etc.	Ind.	50
7.	Enclosure	Ind.	50
	Total		600

Total cost of Raw Materials for 125 units (per month) Rs. 75,000

Note: The quantity and quality of raw material vary with design requirements and features of the Burglar alarm.

(iii) Utilities (per month)	(Rs.)
Power	2,000
Water	500
Total	2,500

(iv) Other Contingent Expenses	(Rs.)
1. Rent	5,000
2. Postage and stationery	1,000
3. Telephone/Telex/Fax charges	2,000
4. Repair and maintenance	1,000
5. Transport and conveyance charges	3,000

(iv) Other Contingent Expenses	(Rs.)
6. Advt. and publicity	5,000
7. Insurance and taxes	500
8. Miscellaneous expenditure	1,000
Total	18,500

(v) Total Recurring Expenditure Rs. 1,22,500
(i+ii+iii+iv)

C. Total Capital Investment

(i) Fixed Capital	Rs. 1,82,000
(ii) Working Capital on 3 months basis	Rs. 367500
Total	Rs. 549500

FINANCIAL ANALYSIS

(1) Cost of production (per annum)	(Rs.)
Total recurring expenditure	1470000
Depreciation on machinery and equipment @ 10 %	12,000
Depreciation on tools, jigs and fixtures @ 25%	2,500
Depreciation on office equipment, furniture @ 20%	6,000
Interest on total capital investment @16%	87920
Total	1578420
or Say	1578000

(2) Turnover (per annum)

Item	Qty.	Rate (Rs.)	Total (Rs.)
Burglar alarm	1500	1325	1987500

(3) Profit (per annum) (Before Taxes) Rs. 409000

(4) Net Profit Ratio $\frac{\text{Profit (per annum)} \times 100}{\text{Sales (per annum)}}$
 $= \frac{409000 \times 100}{1987500}$
 $= 20.58\%$

(5) Rate of Return $= \frac{\text{Profit (per annum)} \times 100}{\text{Total capital investment}}$
 $= \frac{409000 \times 100}{549500}$
 $= 74.43\%$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
Rent	60,000
Depreciation on machinery and equipment @ 10 %	12,000
Depreciation on tools, jigs and fixtures @ 25%	2,500
Depreciation on office equipment, furniture @ 20%	6,000
Interest on total capital investment@ 16%	87920
Insurance and Taxes	6000
40% Salaries and wages	127200
40% other contingent expenses and utilities (excluding rent and insurance)	74400
Total	376020
Or Say	376000

B.E.P.

$$\begin{aligned}
 &= \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}} \\
 &= \frac{376000 \times 100}{376000 + 409000} \\
 &= 47.90\%
 \end{aligned}$$

Additional Information

- 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.
- 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.
- 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.

- 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.

Addresses of Machinery, Equipment and Raw Material Suppliers

Machinery

- M/s. Swastic Machine Tools
4, Lata Chambers,
Nashik - 422 002.
- M/s. Quality Machine Tools
34, JC Road, VISL Building,
Bangalore - 560 002.

Testing Equipments

- M/s. Applied Electronics Limited
A-5, Wagle Industrial Estate,
Thane, Mumbai- 4.
- M/s. Agronic Instruments (P)
Ltd.
201, Shiva Shakthi Indl. Estate,
Mumbai - 86
- M/s. Systronics
89-92, Industrial area,
Naroda - 382 330.
- M/s. TEKTRONIX (India) Limited
5, Crescent Road,
Bangalore- 560 001.

Soldering Equipment and Circuit AIDS

1. M/s. Advance Tech Services
56, 1st Floor, Rani Jhansi Road,
New Delhi-110 055
(*Imported Electronic Tools*)
2. M/s. Bergen Associates (P) Ltd.
1082, Sector 27B,
Chandigarh-19
3. M/s. Circuit Aids Inc.
20/2, 80ft. Road,
4th Block, Koramangala,
Bangalore – 560 001.
4. M/s. Inde Associates
16, Rest House, Crescent,
Off. Church Street,
Bangalore – 560 001.
5. M/s Navnidhi Electronics (P) Ltd.
1-60/I, Shehapuri, Nacharam,
Hyderabad – 7.
6. M/s. Sysco Associates
30/106 (New No.234),
11th Main, Malleswaram,
Bangalore-3.
7. M/s. Techtronics
B-70, II Cross, I Stage,
Peenya Industrial Estate,
Bangalore- 560 058.

Raw Materials/ Components

1. M/s. Amar Radio Corpn.
11/1, Thiglar Periyanna Lane,
SJP Road,
Bangalore – 560 002.
2. M/s. B.H.E.L. Mysore Road
Bangalore – 560 026
(*Solar cells and PV Modules*)
3. M/s. Bangalore Electronics
No. 124, Sadarpatrapa Road,
Bangalore – 560 002.
4. M/s. Electronics Trade and
Technology Development
Corporation Limited

15/48, Malcha Marg,
New Delhi-110021.

5. M/s. OEN Connectors Limited
Vyattila, PB No.2,
Cochin – 19.
6. M/s. Saini Electronics
Pushpadant Nivas, 3, Chuman
Lane, Dr. D. Bhadkamkar Marg,
Mumbai-7.
7. M/s. Southern Electronics
No.113, Sadarpatrapa Road,
Bangalore – 560 002.

Imported Components

1. M/s. Bakumbhai Ambalal
Electronics Dept.
Kaiser-I-Hind Bldg. Ballard Est.
Mumbai-38
2. M/s. General Electronics
19, 5th Floor, Tardeo Air
Conditioned Market,
Mumbai - 34.
3. M/s. Hi-Tech Instruments and
Controls, 23, 3rd Floor, Parsn
Complex, 600 Mount Road,
Chennai-6.
4. M/s. Interco Limited
456, Alexandra Road,
14.00 NOL Building, Singapore
5. M/s. Jairamdas and Sons (P)Ltd.
Mittal Towers, MG Road,
Bangalore –560 001.
6. M/s. Namtech Systems Pvt. Ltd.
35, Dacosta Square,
St. Thomas Town,
Bangalore – 560 084.
7. M/s. Rosemount Inc.
PB 25129, Mineapolis,
MN 55435 (612) 0511 941-5560
USA (For Scissors)
8. M/s. Shilpa International
107, Parklane,
Secunderabad-3.