

**NEW PROJECT PROFILE****ELECTRONIC QUIZ TABLE**

**PRODUCT CODE** : NEW PRODUCT

**QUALITY & STANDARD** : Bureau of Indian Standards has not yet formulated any standard for this product as a whole unit.

**MONTH & YEAR OF PREPARATION** : March 2005

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**1.0.00 INTRODUCTION :**

This is an electronic product of Educational support item and it has been gaining popularity among schools, colleges, educational institutions and even from affordable student community. This consists of electronic components only and does not involve with any high voltage circuit and as such safer to operate and play with. In this project this circuit is discussed in details in view of manufacturing this as a commercial product.

**2.0.00 MARKET :**

Educational toys, games and instruments especially knowledge widening support devices are most welcome among the student community and educational Institutions. As long as the competitive approach among students are growing, support devices, such as, this, are also in line with them in respect of demand. Even through numerous industries are manufacturing this kind of product in varieties, the new-comer in this line will also cater to the demand due to the rising demand of educational competitive skills. As such, entrepreneurs taking up this project will reap good profit and also make quick return of investment.

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**3.0.0 BASIS AND PRESUMPTIONS:**

1. The Basis for calculation of production capacity is on single shift basis, working for 25 days per month at 80% efficiency. Time required for achieving 100 % capacity is assumed as one year.
2. BEP for the scheme has been calculated for 100 % capacity utilization.
3. Rate of Interest has been taken as 14.5 % on an average.
4. Labour wages have been taken on the basis of prevailing rates locally.
5. Rental charges of Rs. 25/- per square metre has been taken on average. This may cost less if unit is located at outskirts of the city.
6. Margin money requirement differs from project to project and the type of entrepreneurs such as, fresh engineering graduates etc. On an average 25% is required for margin money. Normally the entrepreneurs have to Verify with the latest norms of the banks / financial institution.
7. The gestation period for this project is about 6 months and maximum period for repayment of loan is 5 years including gestation period.
8. The cost of machineries, equipments and all accessories indicated in the scheme are approximate and also are at the rates ruling at the time of preparation of the scheme. Taxes, Transportation and octroi may vary from place to place. Entrepreneurs have to verify with the suppliers of those items before placing orders.
9. Non- refundable deposits, cost of preparation of project, consultancy fees etc are taken into account under pre-operative expenses.
10. The operative period of this project is estimated to be about 10 years considering technology obsolescence.

**4.0.00 IMPLEMENTATION SCHEDULE :**

It is estimated that from conception of the project to commercial production, it may take about 6 months including purchase of machines, installation, commissioning, staff recruitment and all clearances from various agencies such as Electricity Board, DIC, Financial Institutions.

## 5.0.00 TECHNICAL ASPECTS:

### 5.1.00 WORKING:-

This is a four segmental circuit suitable to involve with four players (competitors); For more players the number of segments can be added in a cascaded manner. Each segment consists of a MOSFET IRF Z 44 Transistor and three IN 4007 Diodes; the base of the transistor is connected with a variable resistor 50 k ohm and variable capacitor of 47 mic fd; This combination is further connected with a buzzer and lamp; A push button in series with a 560 ohm resistor is also connected with this circuit. This is powered by a 12 Volt 15 Amp battery;

If participant presses the push button switch, the MOSFET transistor is triggered and the corresponding bulb glows and simultaneously the piezo buzzer connected in parallel with the bulb sounds for the preset time. At this instant the capacitor charges to the 12 V then it discharges through preset value of the variable resistor. For example if the preset value of the variable resistor is 4.7 k ohm the delay time is 4 seconds; that is the bulb and buzzer will be "ON" for a duration of 4 seconds only. As per the requirement of the user, the time delay can be varied by varying the variable resistor (50 k ohm); The important feature is that once the first respondent presses the push button others can not have the access to "answer" as the MOSFET has no gate voltage to trigger any other one.

The person at the main circuit box controls everything and gets feedback.

### 5.2.00 PRODUCTION PROCESS:

The electrical and electronic components as detailed under the column of raw materials requirement are procured and inspected as a routine Quality Control inspection.

As detailed in the technical aspects column, a suitable PCB is to be soldered to accommodate all the components as listed under the raw materials column and to be connected as per the main circuitry narrated earlier. These can be accommodated in the Main circuit box and the four segmental box can be given connection through 8 pin connector only for the control of push button and for the lamp & buzzer circuit.

The final product is tested with different time settings and checked. The product is finally packed inside an attractive carton pack with guarantee and card & users manual. The buyer can extend extra wire if need be.

### 6.0.00 Quality Standard and specifications:

Bureau of Indian Standards has not yet formulated specific standard for this product. However, In-house testing facilities for checking and final product testing may be carried out.

### 7.0.00 Production capacity per year:

Type : Electronic Quiz Table with four segments( To engage four competitors)  
 Quantity : 1200 No. per annum ; Value : Rs 13,20,000 @ Rs 1,100 per unit.

8.0.00 Power requirement: 0.75 kW ( 1 HP )

9.0.00 Pollution control:

There is no process creating pollution involved in manufacturing of this product.

10.0.0 Energy Conservation:

Optimum utilization of machines and proper ventilation passage of natural light to the working area will save considerable electrical energy.

11.0.00 FINANCIAL ASPECTS :

11.1.00 Fixed Capital :

A.1 Land and Building:

Built up covered area 100 Sq.m @ 25/- p sq.m. Rs. 2500

**XI. A-2 MACHINERIES AND EQUIPMENTS:-**

|       |  |                            |                     |
|-------|--|----------------------------|---------------------|
| 1.    | Portable drilling machine  | 1 no                       | 4,000               |
| 2     | IC Tester kit  |                            |                     |
| 3.    | Test bench with panel meters fitted on board   | 1 no                       | 2,000               |
| 4     | Work bench fitted with electrical power sockets  | 1 set                      | 6,000               |
| 5.    | Digital multimeter 3 1/2 digit LCD Display AC/DC V/A/Ohm and transistor check features | 4 set                      | 22,000              |
| 6.    | Hand operated DC 500 V Meggar  | 3 No.                      | 9,000               |
| 7.    | 0-200 micro ohm to 2000 ohm Digital milli-ohm meter                                    | 2 No.                      | 4,000               |
|       |  | 1 No.                      | 3,000               |
|       |  | <b>Total</b>               | <b>50,000</b>       |
| A-3   |  |                            |                     |
| (i)   | Electrification and installation charges @ 10% of cost of machines equipments          | Rs.                        | 5,000               |
| (ii)  | Cost of office furniture, typewriter, work bench, shelves, racks. Trays, etc.          | Rs.                        | 20,000              |
| (iii) | Cost of dies and tools   | Rs.                        | 5,000               |
| (iv)  | Pre-operative expenses   | Rs.                        | 20,000              |
|       |  | <b>Total Fixed Capital</b> | <b>Rs. 1,00,000</b> |

**XI-B. RECURRING EXPENDITURE PER MONTH:-**

**1. STAFF AND LABOUR PER MONTH:-**

|                                     |   |                 |               |
|-------------------------------------|---|-----------------|---------------|
| 1. Engineer -Manager                | 1 | 5000            | 5000          |
| 2. Junior Engineer-Supervisor       | 1 | 3500            | 3500          |
| 3. Skilled Workers                  | 3 | 2000            | 6000          |
| 4. Marketing asst/representative    | 1 | 2000            | 2000          |
| 5. Office assistant cum store clerk | 1 | 2000            | 2000          |
| 6. Peon / Watchman                  | 1 | 1500            | 1500          |
|                                     |   | <b>TOTAL</b>    | 20,000        |
|                                     |   | Perquisites 15% | 3,000         |
|                                     |   | <b>TOTAL</b>    | <u>23,000</u> |

**XI.B. Raw Material Requirement per month for 100 units of production:**

| No | Description   | Qty(Nos) | Rate(Rs) | Amount(Rs) |
|----|---|----------|----------|------------|
| 1  | MOSFET IRF Z 44   | 400      | 22.50    | 9000       |
| 2  | IN 4007 Diode   | 1200     | 1.50     | 1800       |
| 3  | Variable resistor 50 k ohm  | 400      | 5.00     | 2000       |
| 4  | Variable capacitor 47 mic fd 25 V   | 400      | 7.50     | 3000       |
| 5  | Resistor 560 ohm  | 400      | 1.50     | 600        |
| 6  | Bulb 15 W 12 V  | 400      | 5.50     | 2200       |
| 7  | Piezo electric buzzer 12 V DC   | 400      | 16.00    | 6400       |
| 8  | Push button   | 400      | 4.50     | 1800       |
| 9  | Plastic cabinet   | 400      | 15.00    | 6000       |
| 10 | Controller box with main switch   | 100 sets | 30.00    | 3000       |
| 11 | PVC insulated copper wire 3/20  | 1000 mtr | 10.00    | 10000      |
| 12 | 8 way contactor   | 400      | 5.00     | 2000       |
| 13 | 32 way contactor  | 100      | 12.00    | 1200       |
| 14 | PCB Main card   | 100      | 18.00    | 1800       |
| 15 | Stickers denoting 'A' 'B' 'C' & 'D' on participants box, connecting wire, lugs, pins, mounting plate, screws, etc | LS       | 40.00    | 4000       |
|    | <b>TOTAL</b>  |          |          | 54800      |

**Rounded off to Rs 55000**

**XI. B-3 UTILITIES PER MONTH:-**

|                                    |                  |
|------------------------------------|------------------|
| (i) Power 60 KWH @ Rs. 4.00        | 240              |
| (ii) Water & sanitary requirements | 400              |
|                                    | <b>TOTAL</b> 640 |

**Rounded off to Rs 650**

**XI - B- A OTHER CONTINGENT EXPENSES PER MONTH :-**

|                              |              |
|------------------------------|--------------|
| 1. Rent 100 Sq.M X 25        | 2,500        |
| 2. Postage and Stationery    | 1,000        |
| 3. Telephone                 | 1,000        |
| 4. Consumable Stores         | 200          |
| 5. Repair & Maintenance      | 200          |
| 6. Transport Charges         | 1,000        |
| 7. Advertisement & Publicity | 500          |
| 8. Insurance                 | 200          |
| 9. Miscellaneous             | 400          |
| <b>TOTAL</b>                 | <b>7,000</b> |

**TOTAL RECURRING EXPENDITURE PER MONTH:-**

Salaries + Raw Materials + Utilities + Contingent Expenses Rs. 85,650  
 Rounded off to Rs 86,000

**TOTAL CAPITAL INVESTMENT:-**

Working Capital (Taken as 3 Months recurring expenditure) Rs. 2,58,000  
 Fixed Capital Rs. 1,00,000

**TOTAL CAPITAL INVESTMENT**

**Rs. 3,58,000**

**FINANCIAL ANALYSIS:-**

**1. COST OF PRODUCTION PER YEAR:-**

|  |               |
|--|---------------|
| (a) Total recurring cost                         | Rs. 10,32,000 |
| (b) Depreciation on machineries @ 10%            | Rs. 5,500     |
| (c) Depreciation on dies & Tools @ 25%           | Rs. 1,250     |
| (d) Depreciation of office equipment @ 25%       | Rs. 5,000     |
| (e) Interest on total capital investment @ 14.5% | Rs. 51,910    |

**TOTAL COST OF PRODUCTION**

**Rs. 10,95,660**

**ROUNDED OFF**

**Rs. 10,96,000**

**XII-2 TURN OVER:-**

By Sale of 1200 numbers of 12 V DC  
 Electronic Quiz Table @ Rs. 1100 Rs. 13,20,000

**XII - 3 NET PROFIT PER YEAR:-**

Sales - Cost of Production = Rs. 13,20,000 - 10,96,000  
 = Rs 3,24,000

**4 NET PROFIT RATIO:-**

$\frac{\text{Profit}}{\text{Turnover}} \times 100 = \frac{3,24,000}{13,20,000} \times 100 = 24.55\%$

**5 RATE OF RETURN ON INVESTMENT:-**

$$\frac{\text{Profit}}{\text{Total investment}} \times 100 = \frac{3,24,000}{3,58,000} \times 100 = 90.5 \%$$

**XII. 6 BREAK EVEN POINT ANALYSIS:-**

**FIXES COST PER ANNUM:-**

|   |          |
|---|----------|
| a) Rent   |          |
| b) Interest   | 30,000   |
| c) Depreciation   | 51,910   |
| d) Insurance  | 11,750   |
| e) 40% of Salaries  | 2,400    |
| f) 40% of contingent expenses excluding<br>rent & insurance | 1,10,400 |
|   | 20,640   |

**TOTAL COST**  
**Rounded off to** 2,27,140  
**Rs 2,27,000**

**BREAK EVEN POINT :-**

$$\frac{\text{Fixed Cost}}{\text{Fixed cost} + \text{Profit}} \times 100 = \frac{2,27,000}{2,27,000 + 3,24,000} = 41.2 \%$$

**XII. ADDRESSES OF SUPPLIERS :-**

**A. Machinery & Equipments:-**

- |   |   |
|---|---|
| 1. Shri Vishnu Machinery manufactures,<br>100, Jayaprakashnagar,<br>Sanganur Road, Ganapathy<br>Coimbatore - 641 006. | 2. J.K. Industries<br>41, Shivaji Marg.,<br>Industrial Area ( Najafgarh Rd.)<br>New Delhi - 110 015             |
| 3. Globe Machine Tools,<br>811, Avanashi Road,<br>Coimbatore - 641 018  | 4. Meco Instruments Pvt Ltd.,<br>PO Box No 6388, 301, Bharat Indl Estate,<br>TJ road, Sewree(w), Mumbai-400 015 |

**B. Raw Materials :-**

- |   |   |
|---|---|
| 1. Sunrise Electronics<br>721/1, Oppanakara Street,<br>Coimbatore - 641 001 | 2. Ingata laboratories<br>686, Oppanakara street,<br>Coimbatore - 641 001           |
| 3. Rajesh Electronics,<br>29/1A, Chandni Chowk Street,<br>Kolkata- 700 072  | 4. Natasha India,<br>Block 6, Stall 719 'A'<br>Old Lajpat rai market, Delhi-110 008 |