

Need statement:

### 1.1 Questions and answer

| Question                                      | Answer  | Objective/Function/Constraint |
|---|---|-------------------------------|
| 1. Should the machine be automatic or manual? | The machine should be automatic.  | Objective                     |
| 2. Machine should be fixed or portable?       | The machine should be portable.   | Objective                     |
| 3. What should be the size of Machine?        | Dimensions:5mX5m  | Constraint                    |
| 4.  | It should wind 20 turns per minute.   | Constraint                    |
| 5. Should the machine be user friendly?       | Yes.  | Objective                     |
| 6. What other features are expected?          | It should wind the satin ribban.<br>It should indicate after completion of winding. | Function                      |
| 7. How much machine can cost?                 | Try to make it within Rs. 3000  | Constraint                    |
| 8. Within what duration, will you need it?    | Within 2-3 months.  | Constraint                    |

### 1.2 Basic Survey and requirements

| Observation from survey | Requirements   |
|-------------------------|--|
| Cost                    | Machine should be built with minimum budget.                               |
| Materials to be used    | Materials used to build, should be light weight, durable and eco-friendly. |

### 1.3 Objectives

| Sl.No | Objectives                       |
|-------|----------------------------------|
| 1.    | Machine should be automatic.     |
| 2.    | Machine should be portable.      |
| 3.    | Machine should be user friendly. |

#### 1.4 Constraints

| Sl.No | Constraints                           |
|-------|---------------------------------------|
| 1.    | Dimensions 5 sq m                     |
| 2.    | It should wind 20 turns per minute.   |
| 3.    | Cost of machine should be within 3000 |

#### 1.5 Function

| Sl.No | Functions                                       |
|-------|---|
| 1.    | Wind the satin ribbon.                          |
| 2.    | It should indicate after completion of winding. |
| 3.    |   |

**Problem definition:** Design automatic winding machine, which is portable and user friendly. Machine must not exceed the volume of 5 sq m, should be able to wind at least 20 turns per minute, budget should not exceed Rs.3000. Machine should indicate the user after winding process is completed.