K J Somaiya College of Engineering
A Constituent College of Somaiya Vidyavihar University

Template for Problem formulation

Need Statement:
Developing a active toy for increasing eye hand coordination among disabled people

Roll Number	Name of Student	Role played
16010121110	Aatmaj Mhatre	Literature survey

Table 1: List of The sample Questionnaire to design the problem

Questions such as	This question helps the designer to
1. Improving hand eye coordination skills of the user.	**Identify client's objective**
2. Time consumption in a week.	
3. Harmful radiation must be avoided.	
4. Portable and easy to handle.	
5. Cost effective.	
1. Managing production cost and selling price.	**Identify constraints**
2. Setup should be compact and easy to carry.	
3. Limited customers.	
1. Hand eye coordination develops among users.	**Establish functions**
2. It is a brief activity of 5-10 minutes on a daily basis.	
3. No harmful radiation from the setup.	

2 The information obtained through basic research and Survey

Observation and from Lit.Survey	Requirements
1. Touch typing improves hand eye coordination.	Requirement of physical button.
2. Cognifit – a game which helps in stimulating cognitive skills.	Similar objective but instead of an app, an actual setup
3. Old fashioned games – such as building blocks, popping bubbles.	Similar objective, but with the use of technology
5.	

1. **Establish client's objectives**

   The product developed must help in development of hand eye coordination skills of the customer. It should be an activity that is easy to handle , the setup should be portable and should not take up a lot of time. It should not emit harmful radiation and blue light and the setup should be cost effective.

2. **Identify constraints**
   It is necessary to develop a cost effective solution where we can manage the production and selling price. The setup should be compact and easy to carry. The solution must cater to the need of limited customers, I.e, disabled persons and toddlers.

3. **Establish functions**
   The product helps in overall development of motor skills of the user via an interactive and simple interface. It is a brief activity of 5-10 minutes on a daily basis. The setup does not emit harmful radiations and rays and is safe to use.

Revised Problem Statement:

To develop a product that improves motor skills and hand eye coordination among disabled persons and toddlers. A battery operated product that is approximately 40 cm long and 30 cm wide to make it portable and easy to handle.

Literature survey

A research was conducted on 78 children in the age group 8-10 using a similar mechanism. Random numbers appeared on the screen and a keypad was used to enter the number. This exercise improved the manual dexterity scores of the children. A very similar study on keyboard positions was conducted which proved increase in eye-hand coordination skills.

Another study applies a similar principle of mole hitting for increasing the eye-hand coordination. It employes three methods for doing so. Mole hitting for random operations, balloon catching game for vertical movement, and the fish catching game for horizontal transfer. However this setup is very sophisticated, bulky and costly.
A recent study maps video games to development of eye hand coordination.