

Hwa Chong Institution

Project Work

Category 3

Inventions Log Book

(Revised for 2021)

Title of Project: <u>Weighted Blanket</u>
Group Name: The Sleep Easy
Group Members: 1)Ng Qi Wei 2)Noah Binedell

1. Problem Finding

(The beginning...)

Identify a problem you would like to solve. You may want brainstorm for problems using different approaches eg thematic, survey or general brainstorming etc.

1 A Document a list of problems you have identified. Your documentation should show clearly how your group came up with the problems.

A lot of rubbish is produced each year but only a small amount is recycled.

Read an article one day about weighted blankets being able to improve sleep quality and reduce stress but realised that such a blanket is thick and not suitable for tropical climate.

A lot of people now use phones in the toilet, but we realised that you cannot conveniently use a phone in the toilet without it getting dirty or spoiled.

1 B You should have selected a problem based on some considerations. Identify and justify these considerations.

These considerations are:

- ❖ Feasibility (Whether we can make the product)
- ❖ Usefulness (The usefulness of the product)
- ❖ Cost (Whether making the product is too expensive)

1 C List some problems your group would like to solve. List also the considerations for selection of problem in the evaluation grid below. Score the considerations, against the problems, with points 1 (least significant) to 4 (most significant). Sum up the total points for each problem. Identify that problem you would like to solve.

Problem Evaluation Grid

*add more columns and rows where necessary

Considerations for Selection	Problems		
	Too little rubbish being recycled	Sleep quality of students is poor due to high stress levels	Cannot conveniently use phone in toilet
Solutions	Automatic Recycling Machine	Customizable Weighted Blanket	Toilet Phone Stand
Feasibility	1	3	3
Is it needed	3	3	1
Cost (Cheaper= higher score)	1	2	3
Total Score	5	8	7

2. Define the Problem (This is one...)

Now that the problem has been identified. It is important to gather information on the extent of the problem and/or evaluate the usefulness of existing solutions based on *some criteria*. You may need to conduct surveys and research on existing solutions.

2 A Extent of problem (Research and discuss the problem and write down the problem statement)

PROBLEM STATEMENT

Problems

- Not suitable for children unsupervised
- Expensive
- Too hot and thick in climates like Singapore
- Not customizable to fit one's needs
- Some cannot be machine washed

Students are often stressed from school, hence most of them do not sleep well. A weighted blanket can reduce stress and help people sleep well. However, the current weighted blankets are too thick and not suited for a tropical climate like in Singapore. Some weighted blankets also need to be hand washed, discouraging people who don't like to wash things by hand from buying them. Therefore, we want to make a weighted blanket that is suited for a tropical climate and easily washable, all while maintaining the benefits of the original.

2 B Compare and contrast the existing or similar solutions.

Layla Sleep Blanket

sherry E. Verified Buyer 06/26/20
★★★★★
I guess I bought the wrong weight it's a little too heavy other than that I like it.

Benson L. Verified Buyer 07/26/20
★★★★☆
Sleep Time: 6-8
Sleep Habits: Always with a partner
Age: 45-54
Never got use to the weight and the pockets of beads. It just did not feel comfortable and often times it was too hot.

Annotations:
- "Not customizable" points to the review from sherry E.
- "Too hot" points to the review from Benson L.

Silent Gravity Blanket

410 SGD shop now

Selection of weights is too small and not customisable

Very expensive

6,8 kg / 15 lbs | 9,0 kg / 20 lbs | 11,3 kg / 25 lbs

3. Your BIG IDEA[#]

(Developing the idea...)

Write down your proposed invention and why you want to do it. State also how you think your proposed invention is better.

3 A Describe your proposed invention.

Our proposed invention is a weighted blanket with pockets on one side of the blanket. The user will sleep with the pockets facing up. The pockets will be arranged in a 5x7 pattern, each around It is called "The Sleep Easy".

3 B Explain the purpose of your proposed invention and the potential benefits to users.

Research suggests weighted blankets can benefit people with anxiety, stress, and insomnia, etc. We want to create a weighted blanket that is suited for the tropical climate.

- Customizable
- Cost effective
- Breathable
- Washable
- Comfortable

This can also be used for students who are overwhelmed and stressed at school as the weights have a calming effect. As most students often stay up late to study, their little time of sleep must be effective, allowing them to sleep well.

3 C In what ways would your proposed invention be different and/or better than existing solutions, if any?

Our blanket is suitable for tropical climate and is breathable. We also have the special feature of weighted packets. This means that the user has a wider selection of weights to choose from. We can also include calming scents such as lavender in the packets. If the user does not want the scent, then he/she can simply remove the scent packets.

3 D What are some problems you expect in the course of your proposed invention?

1. We might not be able to find the materials to use.
2. We might not have enough time.
3. We are unable to make the blanket due to unforeseen circumstances.
4. We are too busy and are unable to do this project work

3 E What and when are the major milestone (project timeline) in your invention?

We plan to finish this writeup by 14/15 August, and then continue preparing for the final evaluation.

#must be able to be constructed based on current / emerging technologies, must not violate the laws of Science or go against the laws of nature.

4. Proposed Construction or Modelling Process*

(This first... then that...)

You are now onto the fabrication of your prototype/ product. You need to select material and understand how to put them together so that your prototype/ product can perform its function.

4 A Explain how and why the materials were chosen for the prototype/ product of your invention

1. Cotton. This is the main material the blanket is made of, and it is suitable as it is very breathable and suitable for tropical climates. It is also used to make the pockets for the beads and the lavender
2. Glass beads. This is the material that provides the weight. We chose it because it is small and hence can spread out the weight most evenly to provide the best comfort.
3. Dried lavender flowers. This provides the calming scent. We chose the dried flowers because it retains its scent for a longer period of time than the fresh flowers. It also does not biodegrade or decompose.

4 B Explore these considerations that may guide the construction of your prototype/ product.

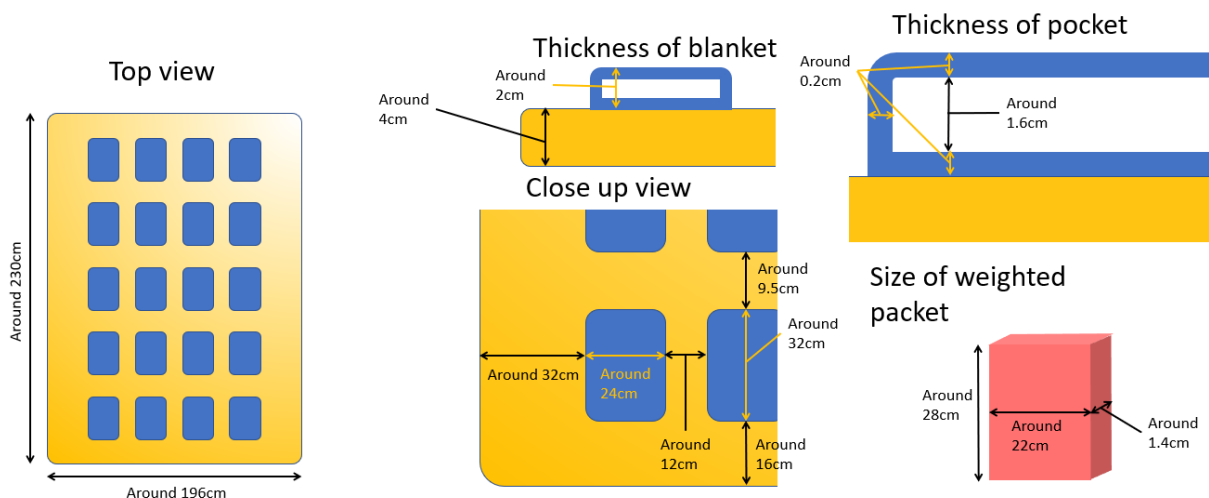
Is it comfortable for the user?

Is it able to provide the weight?

Is the weight enough?

Is the scent suitable?

4 C Propose how the prototype/ product will be constructed or developed. You may use drawings and photographs.



(not drawn to scale)

OR

If construction of the prototype is not possible, then you have to create an animation / as a proof of concept that it can be applied in a bigger scale.

4A Explain why construction of a prototype is not possible and the proof of concept is needed in your case.

4B Briefly explain how the video / animation can effectively show how your invention will work and the different considerations.

Warning:

- *Video / animated simulation only if prototyping is absolutely no possible.*
- *Video / animated simulation must be logical and convincing that the invention works.*
- *Constraints must be clearly included in the logbook or the project will be heavily penalized.*

5. References

Read <http://www.bibme.org/citation-guide/apa/> on how to cite references.

5 A Cite the references you have used for your project work. Your source of reference should come from different types (eg books, magazine, websites, journal articles, interview, photographs, product brochure, reviews etc.)

Layla Weighted Blanket (This is an online shopping platform)

[-https://laylasleep.com/product/layla-weighted-blanket/](https://laylasleep.com/product/layla-weighted-blanket/)

Silent Gravity Blanket (This is also an online shopping platform)

[-https://thesleeplab.com/products/silent-gravity](https://thesleeplab.com/products/silent-gravity)

Eleesha Lockett, MS (August 29, 2019) Weighted Blankets: Do They Work?

Retrieved from: <https://www.healthline.com/health/anxiety/do-weighted-blankets-work#benefits>

