

Hwa Chong Institution
Project Work
Category 3 Invention Log Book

Title of project:Toiliator
Group name:
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1. Problem Finding

(The beginning...)

Identify a problem you would like to solve with your intended invention. You may want brainstorm for problems using different approaches e.g.s 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.

Bag too heavy

Changes in temperatures in Singapore

Toilet too dirty

Doing chores is too boring

Pet anyhow poo and pee

Uncomfortable when breathing during haze

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

Toilet too dirty

A lot of people are affected by the sheer dirtiness of the public toilets and could not have a pleasant experience dumping. That is why it's a big problem

1 C List some problems your group would like to solve. List also the considerations your selection of the problems 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		
	Difficulty in breathing during haze	Drastic change in temperature in Singapore(etc,	Toilet too dirty

		shopping mall and outdoors)	
Is it solved?	3	4	3
Direness	3	2	4
How much people are affected by it	2	3	4
Total Score	8	9	11

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

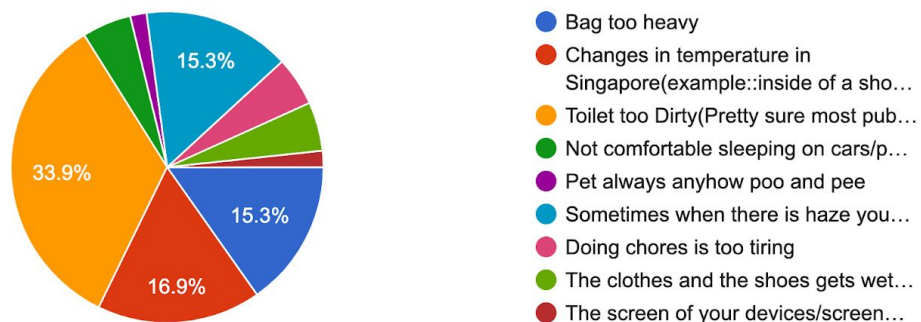
Now that the problem has been identified. It is important to gather information on the extent of the problem and/or evaluate the usefulness of existing solutions based on *some criteria*. You may need to conduct surveys and research on existing solutions.

2 A Extent of problem (Research and discuss the problem and write down the problem statement. Include in-text citation where appropriate.)

About the problems, we did a survey

Which problem in the list below do you think is the most severe

59 responses



and found out that the problem "toilet too dirty" is the most severe one. We also face this problem a lot as some students in our school do not use the toilet properly and throw wet toilet paper around the toilet, not flushing after use, and sometimes spraying their pee on the floor. When we had our camp just a few weeks ago, the problems were also shown in the toilets. Some of the toilets are clogged with faeces and they are very dirty on the floor and that caused many of our classmates not to use the toilet for the whole camp.

2 B Compare and contrast existing or similar solutions with your invention. Include in-text citation where appropriate.

Our invention is quite similar with the toilet cleaning brush in some places. However, ours is more efficient and no need a lot of energy .The cleaning detergent is also similar. However, our one has a built in dispenser and can make it easier to clean the toilet as we just need to turn the handle and the brushes will be rotated and the toilet would be cleaned. The detergent will also be squirted out when the handles turned.

3. Your BIG IDEA

(Developing the idea....)

Describe your proposed invention and why you want to do it. State also how you think your proposed invention is better than existing solutions. Include in-text citation where appropriate.

3 A Describe your proposed invention.

It is a tool that allows you to transform the dirty toilet into a clean one easily and efficiently!! It is made of three parts , the head. the handle. Each has specific functions. The head unclog

the toilet ,the body cleans the toilet and the handle controls the functions.

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

It could be placed inside toilets which can be used to the advantage by the users of the toilets.

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

It can be used more efficiently and effectively to clean the dirty toilets. It also don't require robotic which can allows it to be useable by everyone

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

Expected the mechanism not to fit into the toilet bowl perfectly and the seat cleaner might not be able aline with the seat

3 E What are the major milestones (project timeline) in your invention process?

When we were at the SOAC,we felt that the toilets are too dirty and wanted to come up with a solution to solve the problem.I also got this idea when I am walking the dog and my grp mates improved it.

4. Construction Process

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

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

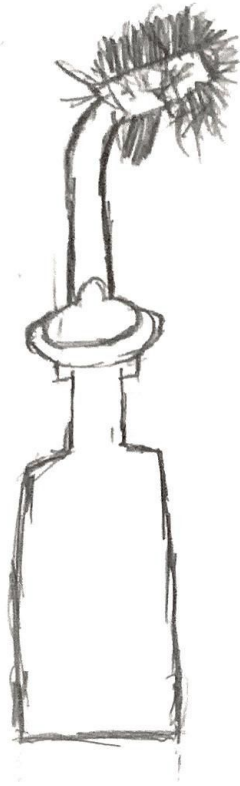
4 A Explain how and why the materials were chosen for the prototype/ product of your invention.

The artificial nipple was able to control the water flow and it was swirvely as a bonus. The toilet brush is self-explanatory as it is what normally used to clean the toilet

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

The toilet shape, the water flow needed, how strong the connections should be

4 C Document the development stages of your invention. You may use drawings, photographs or videos (insert a link of the video / animation).



The design for the brush



Building a prototype



finished prototype

MK. FIN



In production



Finished Prototype

5. Modification and Evaluation

Upon the completion of your prototype/ product, you would need to see if it is working the way you intended. Check if your product has met the identified purpose and the user’s need; and implement necessary modifications and improvements. This process may require several iterations.

5 A Create your prototype/ product test criteria to help you assess the functionality/effectiveness of your prototype. Identify areas of weakness and suggest modification(s) for improvement. Indicate the test iteration and date of test.

Test Iteration:	Tick			Remarks (suggest possible modification(s) for improvement)
Test Date:	Pass	Fail	Potential Failure	
Test Criteria 1	nope	yes	high	

Test Criteria 2				
Test Criteria 3				

*Add more rows for more criteria

** Repeat table for next test iteration

6. References

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

6 A Cite the references you have used for your project work in APA format. Your source of references should be varied (e.g. books, magazine, websites, journal articles, interview, photographs, product brochure, reviews etc.)

<https://www.indiamart.com/proddetail/toilet-cleaning-brush-17272865762.html>

<https://www.toilet.org.sg/docs/npsurvey>.

<https://www.nea.gov.sg/programmes-grants/grants-and-awards/request-for-proposal-for-a-smart-easy-to-clean-toilet>

<https://m.youtube.com/watch?feature=youtu.be&v=DE4RKg2L39w>

<https://youtu.be/LKgPo9C3NHo>

<https://www.youtube.com/watch?v=DTPrSloFYBo>