

# Hwa Chong Institution

## Project Work

### Category 3

## Inventions Log Book

(Revised for 2020)

Title of Project: <u>Automatic Clothes Folder</u>
Group Name: 3-42
Group Members:  1) Ryan  2) Caleb  3) Darren  4) Chen Yu

## 1. Problem Finding

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

- Folding clothes is inconvenient
  - Our generation finds folding clothes inconvenient
- Losing wallet
  - I am sure many of us lost our wallets before and take a long time trying to find it, or even never getting it back, and all our valuables are gone.
- Spilling liquids on laptops
  - I have spilled my drink all over my laptop before and It was damaged severely

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

Our considerations to which problem we should work on are:

- Is feasibility
- Need for solution?
- How many people does it affect?

**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		
	Folding clothes is inconvenient	Losing wallet	Spilling liquids on laptops
feasibility	4	2	1
Need for solution	2	4	2
How many people does it affect	4	3	2
Total Score	10	9	5

## 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.

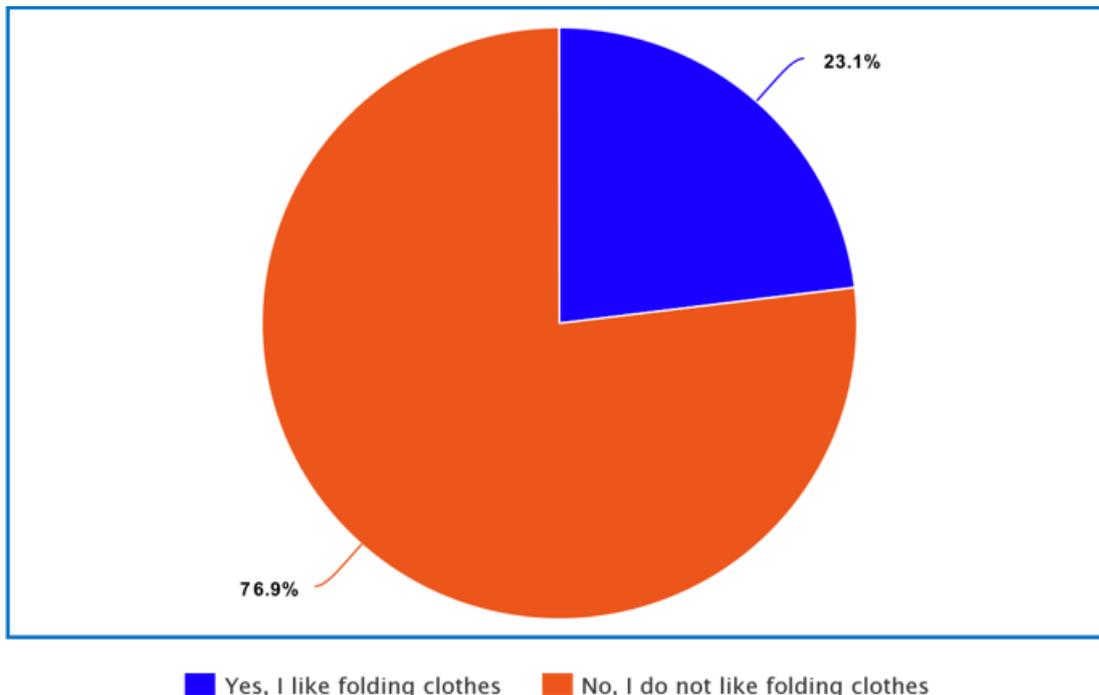
**2 A Extent of problem (Research and discuss the problem and write down the problem statement)**

Our problem is that a majority of people take too much time to fold their clothes or do not even fold their clothes.

According to our statistics, about 30% of the people take about 10-30 minutes to fold their clothes, which in our opinion, is a lot of time. In addition, around 35% of the people do not fold their clothes because it takes too much time or they have a helper.



In another survey, about 76% of the people do not like to fold their clothes.



## 2 B Compare and contrast the existing or similar solutions.

Based on our landscape scan, there are some products in the market to address this problem such as Foldimate [ (Foldimate, 2020)] and a 3D folding machine [ (Grabcad, 2020)]. The good side of the Foldimate is that it can fold and de-wrinkle clothes as well. However, the downsides are that it is very expensive, around \$1000 and more and big footprint, about that of a washing machine. It also requires electricity to operate. The good side of the 3D folding machine is that it is extremely compact and can be folded. However, it requires battery energy. It has low efficiency, as clothes can only be folded one by one. We would like to come up with a solution that can cover all their downsides.



Foldimate



3D folding machine

## 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.

Automatic Clothing Machine would be the best choice as our product. We had to ensure that it will be cheap and does not require electricity by using gravity as our energy source.

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

Our invention will fold clothes automatically, and save the users' time and make it more convenient for them.

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

It will be more convenient, cheaper, more efficient, more energy saving.

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

We will have to carry out a lot of trial and error to get the perfect angles for the drops as we are using gravity as our energy source.

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

Early June – Thought of improvements from our first prototype from proposal evaluation

Mid June – Made our final digital prototype

Late June – Made our slides

***#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.

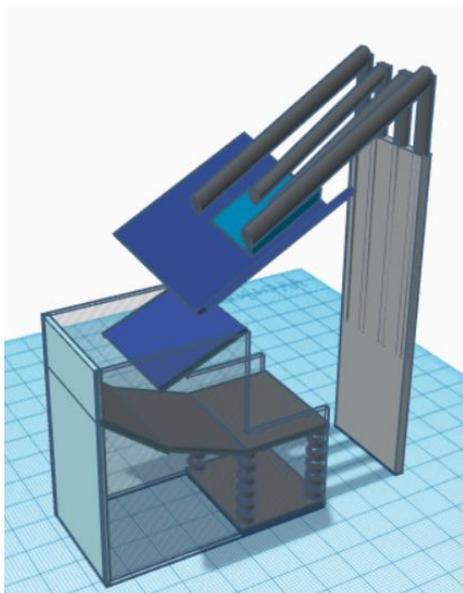
**4 A Explain how and why the materials were chosen for the prototype/ product of your invention**

We wanted cheap and lightweight materials, hence we chose plastic and light metals like aluminium

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

As they were light, we will not need strong supports, just bolts and screws will do.

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



## 5. 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. Your source of reference should come from different types (eg books, magazine, websites, journal articles, interview, photographs, product brochure, reviews etc.)**

Existing Solutions

Foldimate. (18 August, 2020) Retrieved from <https://foldimate.com/>

Grabcad. (18 August, 2020). Retrieved from <https://grabcad.com/library/clothes-folding-machine-1>

Prototype

Tinkercad. (18 August, 2020). Retrieved from <https://www.tinkercad.com/>