

# Hwa Chong Institution

## Project Work

### Category 3 Inventions Log Book

Title of Project: The Great Outdoor  
Companion

Group Name: The Great Outdoor  
Companion

Group Members:

1) Alex Yan Yan

2) Zhu Kunyu

3)

4)

## 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.**

It's very difficult to pack bags for camping and trekking. Losing items in school. Cannot wake up

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

Is the problem serious? Is the problem solvable? Is problem realistic?

**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		
	#1 Packing camping bags	#2 Losing items in school	#3 Cannot wake up
Consideration 1 Is the problem serious?	2	3	1
Consideration 2 Is the problem solvable?	2	1	3
Consideration 3 Is problem realistic?	3	2	1

Total Score	7	6	6
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## 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)

90% of people in the survey responded that packing of bags were tiring and this bag will make it easier. And 86% of people find it hard to keep organised while camping and that this will make it easier.

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

The most similiar solutions that we could find was the utility belt used by the police and army to put their hand guns and other important things they need. The utility belt is similiar in terms of the purpose, which is for easy access to important things. However, our product differs as ours is used for survival and the targeted community is different. Ours is also connected to the bag and hard to be detached.

## 3. Your BIG IDEA<sup>#</sup>

(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.

The Great Outdoor Companion is a bag that has 5 things connected onto its strap. The different compartments of the bag includes the Hydration Bladder, utilities on the strap that is detachable, main bag and fanny pack with things inside.

**3 B Explain the purpose of your proposed invention and the potential benefits to users.** Its is mainly targeted on campers and trekking. The purpose of it is to make packing of items for campers much easier as the important things are on the bag so that the user would not forget. This bag is also convenient for the camper as he would not need to remove the bag and find his things when taking things to use. This would allow the user to save time that could be spent on his journey.

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

Many of the current products are either for a different target audience or that it is very inconvenient for the user, and they do not have the idea of things on the strap for convenience.

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

Might not be able to find a magnet that is strong enough, which may result in the items dropping off.

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

Term 1: Forming of group, ideation, finding a mentor

Term 2: Finish of idea and start of the prototype. Proposal evaluation

Term 3: Finish the prototype and improve on it. Mid term and 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. 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**

Cordura, it is very strong and is more common among camping bags. Magnets as they are easier for the user to take and use. A torch for seeing in the dark. A foldable knife for self defense against wild animals and can be used for preparation of food in the wild. A wire saw

used to saw larger objects such as wood that can be used for shelter and to start a fire. A compass used to find the way as there might not be energy or signal to power modern devices like GPS. A permanent match used to start a fire and it can be used in adverse weather conditions like rain and wind. It is also reusable.

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

1. Type of material
2. amount of tools
3. Types of tools

**4 C Document the prototype/ product development stages. You may use drawings, photographs or videos.**



## 5. Modification and Evaluation

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

**5 A Write down your prototype/ product test criteria and check against it if it works. Identify areas of weakness for modification. Indicate the test iteration and date of test.**

Test Iteration:	Tick			Remarks
	Pass	Fail	Potential Failure	
Test Date: 25th June				
Test Criteria 1 Strength	✓			We took a sharp scissors to attempt to break the bag but it was strong and did not tear.
Test Criteria 2 Waterproof	✓			We wet it but no water went through into the insides.
Test Criteria 3 Speed of taking the items off	✓			The time taken had decreased a lot as compared to the normal time it would have taken for a normal bag to take

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

- 1.Camelbak® 3l Reservoir
- <https://missionworkshop.com/products/hydraton-backpack-accessory-camelbak-3l-reservoir?variant=18303603205>
- 2.Rothco Commando Wire Saw
- <https://www.amazon.com/Rothco-8312-Commando-Wire-Saw/dp/B000WDPGW>
- 3.Industrial Revolution Firesteel Army Fire Starter | Cabela's Canada
- Cabel -  
<https://www.cabelas.ca/product/63715/industrial-revolution-firesteel-army-fire-starter>
- 4.Blizetec Survival Knife: Best 5-in-1 Tactical Pocket Folding Knife with Led Light, Seatbelt Cutter, Glass Breaker & Magnesium Fire Starter
- <https://www.amazon.com/BlizeTec-Survival-Knife-5-Magnesium/dp/B00HESG0ZA>
- Retractable Key-rings There Are No Products in This Category.  
<https://onestop-locks.com/key-reels-40211>
- New Permanent Match Striker Lighters W Key Chain Silver  
<https://www.amazon.com/Permanent-Match-Striker-Lighters-Silver/dp/B00EHCUGK6>
- High Sierra Access Backpack  
<https://shop.highsierra.com/backpacks/daypacks/high-sierra-access-backpack/53671XXXX.html>