

Hwa Chong Institution

Project Work

Category 3 Inventions Log Book

Title of Project: Page Turner for Musicians
Group ID: 3-34
Group Members: 1) Beh Hong Kiat 2) Caleb Ng 3) Chen Ming Hao

1. Problem Finding

(The beginning...)

Identify a problem you would like to solve. You may want to 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

--We watched a video on Youtube where someone was in the middle of a performance when he needed to flip the page of a songbook but accidentally pushed the songbook off the stand.

--We realised that all musicians face this problem in which in the middle of a piece they need to flip the page of the songbook but both hands require to be on the instrument. As a result, they have to lift their hand from the instrument and quickly flip the page. At that instance, they make a mistake and either tear the page, push the songbook off the stand or do something not planned to their songbook. After that, they will be in a mess.

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

The problem is that musicians have problems flipping their songbooks while playing the piece.

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*

Theme: Musicians and problems encountered by them during their performances.

Considerations for Selection	Problems		
	#1 <i>Starts sweating but cannot wipe his sweat</i>	#2 <i>Hard to flip the music score while playing</i>	#3 <i>Easily adjustable chair (for pianists)</i>
Solvable	4	3	2
Scale of problem	1	3	1
Lack of solutions in the market	2	4	5
Total Score	7	10	8

2. Define the Problem

(This is one...)

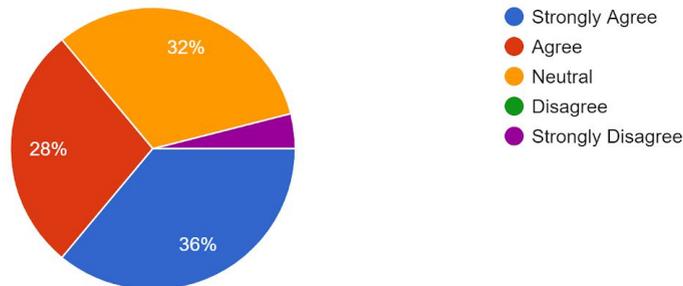
Now that the problem has been identified. It is important to gather information on the extent of the problem and/or evaluate the usefulness of existing solutions based on *some criteria*. You may need to conduct surveys and research on existing solutions.

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

Quite a lot of musicians, especially in orchestras, have to flip their scores throughout the entire concert. Although the art of flipping scores while playing can be practised, we are seeing if there is a better way to do it. After all, there are many Youtube videos showing how musicians can fail even just turning a page.

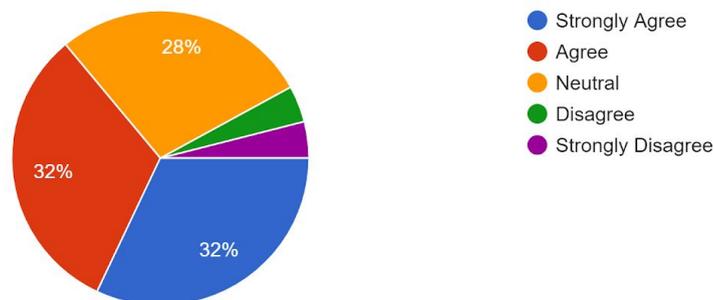
Do you have trouble flipping the music score while playing?

25 responses



Have you ever messed up while trying to flip the page of your musical score?

25 responses



2 B Compare and contrast the existing or similar solutions.

1. [Pageflip lite](#):

Price: \$220 on Amazon; Average rating of 2.8 out of 5 stars

Battery operated

Limited to 10 pages every time

2. *Uturn:*

Battery operated

Unlimited pages

Uses a sensor to detect when a person moves/shakes his head then turns the page

3. *Our Idea (V2):*

Mechanical, more pages than PageFlip Lite

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.

V1: It is made up of two parts, the flipping mechanism and the resetting mechanism, and both will be activated by one pedal.

V2: Everything is in a box with a pedal at the right-hand side. It would be approximately 51cm by 8.4 cm by 8.4cm.

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

This invention can help musicians to flip their scores while still playing.

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

[PageFlip Lite](#) vs Our Idea:

Our idea can flip more pages than [PageFlip Lite](#).

It also does not need to be charged.

It can be used for different types of instruments

Uturn vs Our Idea:

Our product does not require to be charged.

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

V1: The resetting mechanism pushing a page forward and the noise it makes.

How adjustable the strings are (in terms of length)

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

30 March: Idea generation

2 April :Came up with a very simple concept sketch

5 April: Created online Survey

6 April: Released survey

7 April: Started making the presentation on Google Slides

8 April: Research

9 April: Stopped survey and collected results and more Research

11 April: Added survey results to the presentation and Research

12 April: Added research results and our idea

14 April 2200: Final touch-up

23 July: started discussions of our final product

27 July: decided on our final idea

30 July: listed all materials needed and calculated manufacturing cost so as deciding on price

3 August: started doing up our slides

10 August: showed slides to mentor (Ms Pek) and made some changes to the slide

12 August: presented our slides (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 investment

It is lasting , won't rust and is strong and lightweight so it is easy to carry around

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

Make sure to calculate the precise length and dimensions as well as materials of the prototype before making it

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

OR

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

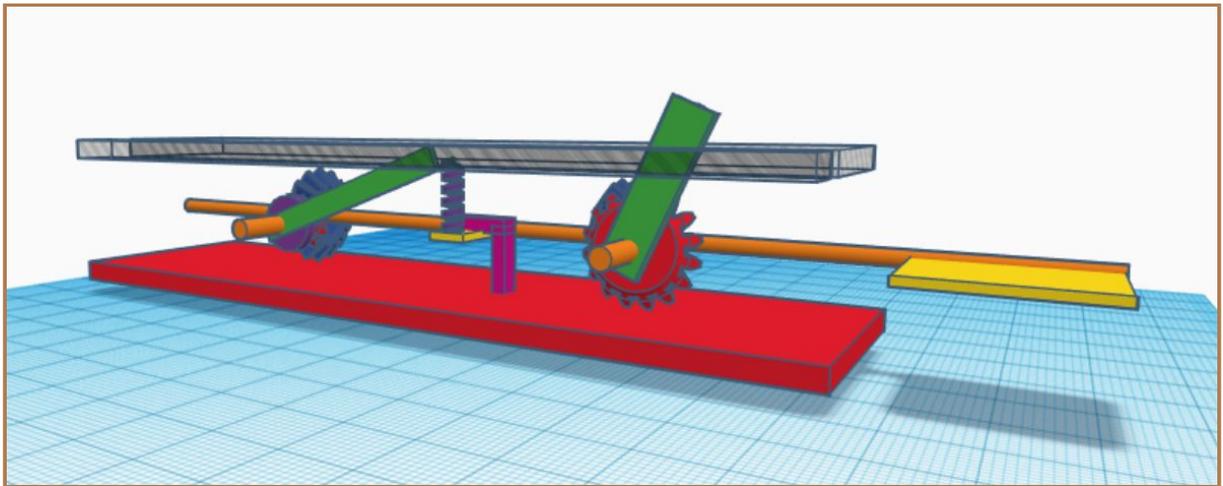
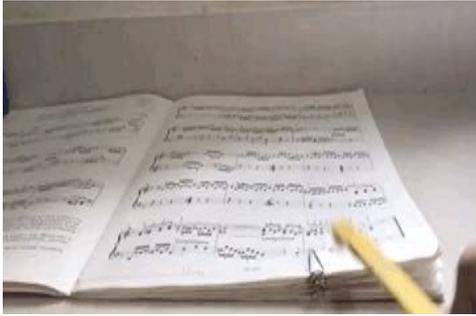
4A Explain why the construction of a prototype is not possible and the proof of concept is needed in your case.

Our product is rather complex and we may not be able to construct this prototype in school due to the materials and complexity

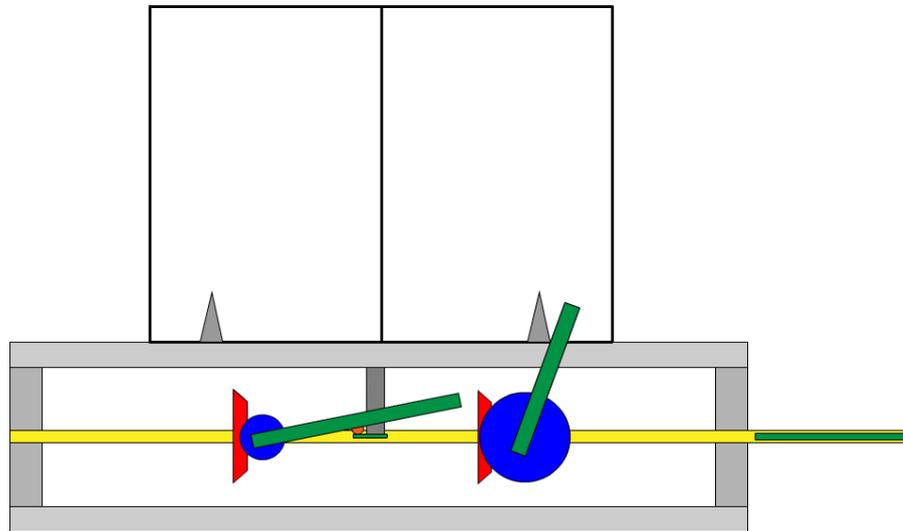
4B Briefly explain how the video/animation can effectively show how your invention will work and the different considerations.

The animation and pictures below show how the mechanism moves and works.

Output (flipping)



It will look like this



Animation

As the animation does not work on pdf please use this [link](#) to access it

Warning:

- *Video / animated simulation only if prototyping is absolutely not possible.*
- *Video / animated simulation must be logical and convincing that the invention works.*

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.)

<https://www.pageflip.com/products/lite>

<https://www.amazon.com/PageFlip-PFLITE001-Lite/dp/B0030DLNS2>

<https://www.youtube.com/watch?v=pe37RjWV6fk>