

Hwa Chong Institution

Project Work

Category 3 Inventions Log Book

Title of Project: Safe distancing token
Group Name: 1A2 Inventions Group
Group Members: 1)Keith Lim 2)Shawn Lim 3)Jeffrey Meng

1. Problem Finding

(The beginning...)

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

In this pandemic now, we realised one reason why Covid 19 cases are going up is because people are not having a safe distance of 1 meter, therefore causing the virus to spread more quickly.

Another problem that we have identified is that social distancing officers are not able to keep up constant social distancing between a vast amount of people.

The last problem we identified is that when the social distancing officers are gone, people would tend to forget to maintain social distancing.

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

We considered that some people would not social distance, thus, we found that a problem as there could be a possible spread of germs if they are too close. Thus, we wanted to make sure people maintain social distance so we created this token

1 C. List some problems your group would like to solve. List also the considerations for selection of 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		
	#1 Not enough safe distancing officers to remind people to safe distancing (safe distance robot)	#2 People will tend to forget to maintain constant social distancing after social distancing (safe distancing token)	#3 People don't listen to safe distancing officers who are telling them to have safe distance (CCTV for safe distancing)
Consideration 1 price (1)	1 (1)	2 (2)	1 (1)
Consideration 2 usefulness (4)	2 (8)	4 (16)	3 (12)
Consideration 3 durability (2)	4 (8)	3 (6)	4 (8)
Total Score	17	25	21

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)

First, we found out a problem: A lot of people are not practicing social distancing even at this time and this was bad as it would increase the chance of germs spreading when they are too close to each other. By creating this token, we hope that the people who are not socially distanced would practice social distance and reduce the chance of germs spreading between people.

2 B Compare and contrast the existing or similar solutions.

Another solution would be the safe distancing officers which would have to visit the place to maintain social distancing. However, there are too few safe distancing officers to implement social distancing between the people. Even after the social distancing officers remind the people to maintain social distancing, they will forget to do so later and will not maintain social distancing.

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.

It is a token that uses bluetooth to detect where other tokens are to ensure that people are maintaining a safe distance (more than 1 meter apart) from each other. Should someone be less than 1 meter apart from another person, a siren would trigger, sounding until there is no longer a person less than 1 meter away from them.

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

The purpose of our invention is to reduce the transmission of Covid-19, by alerting the people should they not be 1 meter apart from one another in order to maintain a social distance, reducing the amount of germs spread.

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

The only existing solution to this problem is the safe distancing officers. However, there are two problems with this solution. One is that there are too few social distancing officers to maintain constant social distancing between the people. Secondly, after the social distancing officers are gone, people would neglect social distancing. On the other hand, our invention would sound whenever it receives a signal from another token that the distance is less than 1m. The token will play the siren until there is 1m distance and all this is done by bluetooth, so there would be no need for safe distancing officers to be there.

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

Some problems that we expect are the coding of the invention to play the siren and the making of the invention as this includes software. It may be hard to be able to code the token successfully.

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

When we manage to code the token successfully.

Making of the prototype.

#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.

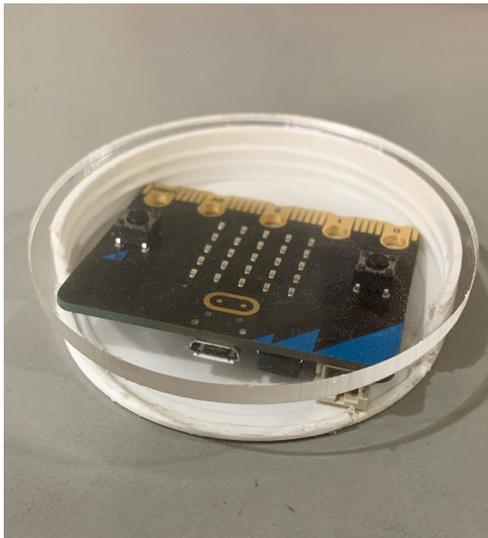
4 A Explain how and why the materials were chosen for the prototype/ product of your invention

Firstly, we would use a Micro bit board which is able to sense and read inputs. This way, if the Arduino detects someone who is not socially distanced (1m or below) it would be able to buzz. This way, when the token buzzes, the person would be alerted and would remember to practice social distancing

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

We wanted to make the token wearable, so we thought that it would be suitable to use a velcro strap to make it wearable. The token should also buzz so we made sure that the codes are correct and when the Microbit is brought close together, it will buzz.

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



This was our first prototype before adding the strap and battery pack.



adding the strap and battery pack

This was the end product after



This was how it would look when you wear it.

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 on a bigger scale.

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

NA

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

NA

Warning:

- *Video / animated simulation only if prototyping is absolutely not 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 (e.g. books, magazines, websites, journal articles, interviews, photographs, product brochures, reviews etc.)

The token would look similar to the Trace Together Token, Retrieved from:

https://www.bing.com/images/search?view=detailV2&ccid=6UsCy11n&id=E408250B0829925E2C3BF398E18EE0BD1689AB57&thid=OIP.6UsCy11nbVqP84V3sTR-JwAAAA&mediurl=https%3a%2f%2fcf.shopee.sg%2ffile%2f1230bdcf31a709b4c5baaac7ed1da225_tn&exph=320&expw=320&q=trace+together+token+singapore&simid=608002408108158131&ck=81EF984A79558F816DEF7C276AC7C6B7&selectedIndex=5&FORM=IRPRST&ajaxhist=0&ajaxserp=0

Publisher: 2020 Government Technology Agency. 21 May 2021. Retrieved from <https://token.gowhere.gov.sg/>