Hwa Chong Institution
Project Work
Category 3
Inventions Log Book
(Revised for 2020)

Title of Project: Wristbell
Group ID: 3-11
Group Members: 1) Brendan Kong (Leader) 2) Cai Yu Heng 3) Chung Wei Hong

2)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.

Some problems include:

➢A system to recycle used water for watering plants

➢A device to track stolen items

➢A device to help hearing-impaired individuals answer the doorbell

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.

Considerations for selection	System to water plants	Bell for deaf people/people with hearing disabilities	Device tracking system to track for stolen items
Is it really a **BIG** problem	1	4	3
Existing solutions?	2	3	4
Is it feasible?	3	5	2
Total score	6	11	9

Define the Problem

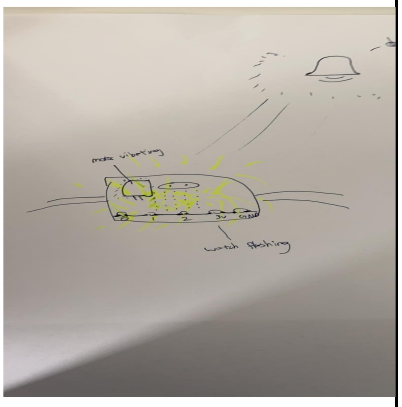
(This is one…)

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

From the survey, we found out that missing the doorbell can bring around problems such as the delivery personnel having to wait, people thinking that no one was at home and thus making a wasted trip.

From the results yielded from the survey, the majority of the people felt that missing the doorbell would bring problems, especially to the hearing impaired. Thus it is evident that many people with hearing disabilities, especially those living by themselves would benefit greatly from this invention

2 B Compare and contrast the existing or similar solutions.

		
Physen CW kit	Honeywell series	Wristbell
Expensive ($35)	Expensive ($45)	Affordable ($15)
By stationary light	By stationary light	By portable light and by vibrating
Stationary	Stationary	Portable

Your BIG IDEA#

3A Describe your proposed invention.

Our proposed invention is a Wristbell. It is a device worn like a watch around one's wrist. It allows us to be informed when the doorbell has been pressed. It is made up of two microbits, one to program the doorbell and the other to program the watch-like device. The two microbits are connected via radio, such that the microbits can send messages and signals to each other. When the doorbell is pressed, the micro bit programming the doorbell would send a signal to the microbit controlling the watch-like device. The microbit would then make the device light up in the shape of an 'S' and a dc motor would start rotating to inform the user that the doorbell has rung. The user would then be able to know that it has rung and go to unlock the door for the visitor.

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

This invention would help the people with difficulties in hearing/deaf people to be able to effectively answer the doorbell, and this invention would be suitable for people of all ages.

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

Our invention has a vibrator attached to it to allow users to know if someone is at the door even though they might be anywhere in their house. Other existing solutions require the users to spot a fixed blinking light which might now work if they are not looking at the light.

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

The materials might be a little difficult to find, and the programming would take a tremendous amount of time.

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

Our estimated project timeline is as follows:

- 2 April 2020: Project proposal evaluation
- May 2020: Making and programming of the project
- June 2020: Working on project report

- August 2020: Project finalisation and the final product

Proposed Construction <u>or</u> Modelling Process*

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

We chose a microbit as it is easily accessible, and Brendan, our group leader, has some experience in micro bit programming. The rest of the materials were components part of the microbit and they go the best with micro bit programming.

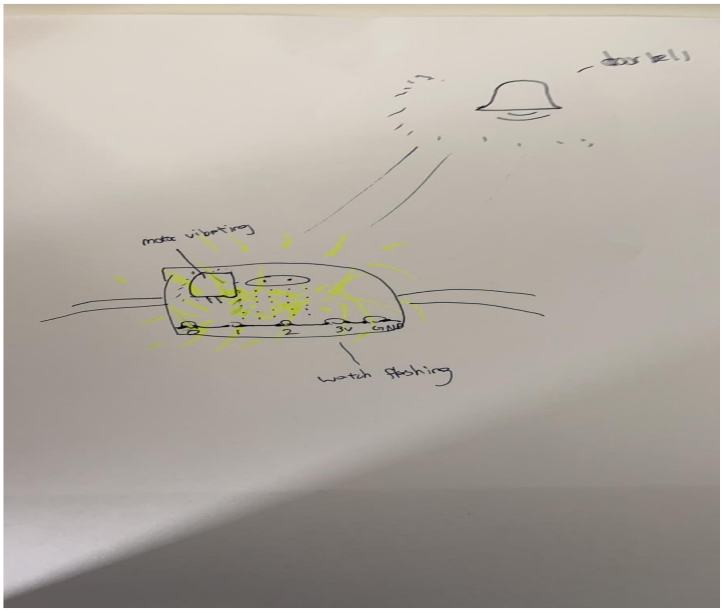
4 B Explore these considerations that may guide the construction of your prototype/ product.

We designed this product for those who have hearing disabilities. We based the design based on their convenience. We wanted it to be portable and lightweight. It should also suit its original purpose of allowing the user to know who's at the door.

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

Brendan, our group leader, would set up the components and program the microbit to do as we stated above, to help the hearing impaired/deaf people in society.

This is how the wristbell would look like:



Citations

➢Kregle, J. A. (2020, February 3). 7 Wireless Doorbells For The Deaf Or Hearing Impaired. Retrieved from

https://allwirelesshome.com/best-wireless-doorbell-for-the-hard-of-hearing-top-7/

➢https://www.amazon.co.uk/Coolqiya-Wireless-Waterproof-Receivers-Operating/dp/B071CLT38M?tag=wirelessdb-21

➢https://www.amazon.com/Physen-Waterproof-Wireless-Doorbell-Receivers/dp/B00Q9MQMIM?tag=bwd04-20

➢https://www.amazon.com/Honeywell-RDWL917AX2000-Portable-Wireless-Doorbell/dp/B01HNSFTBQ?tag=bwd04-20