

# My Visual Designs

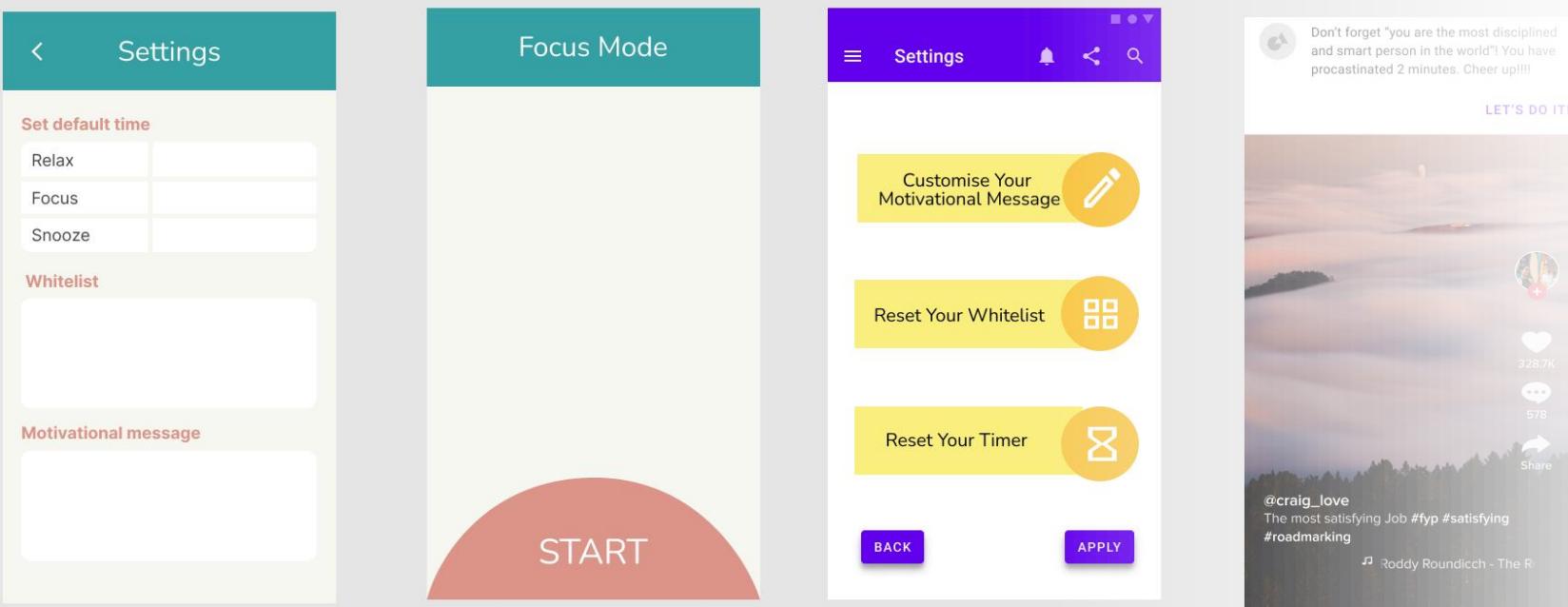
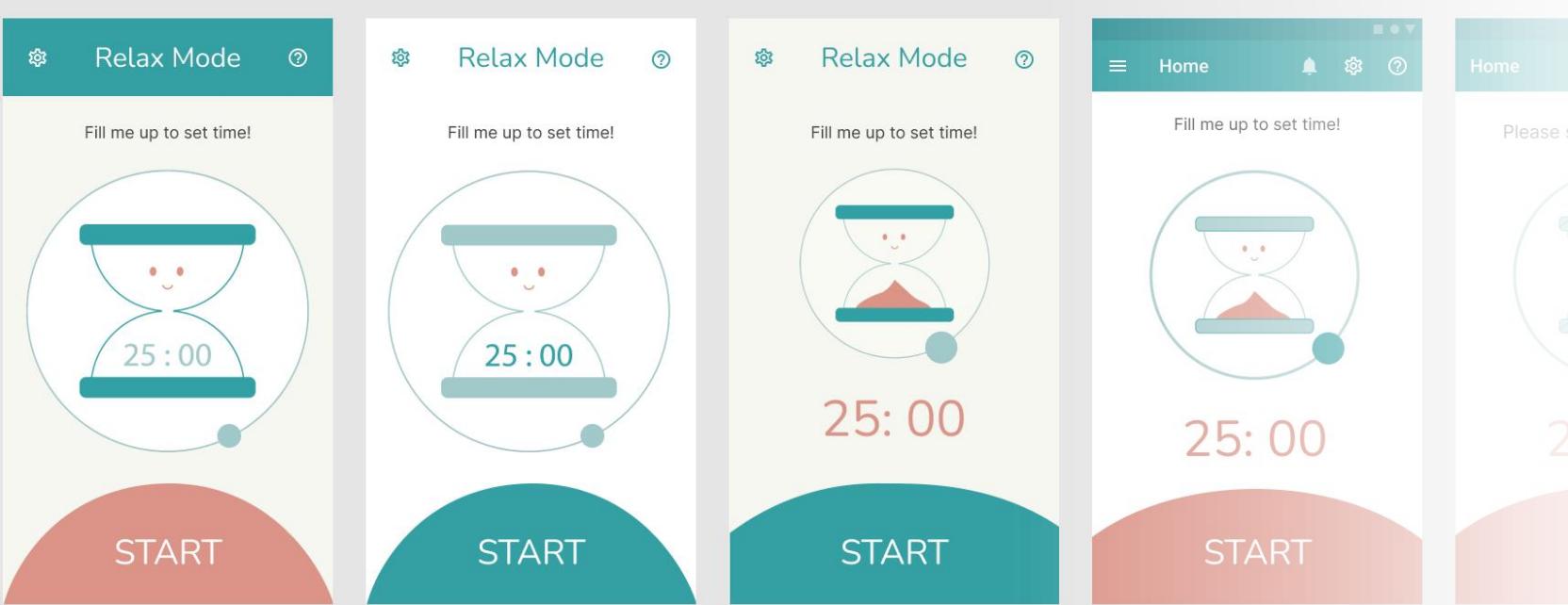
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Brenda Lim

# Hourglass (Focus App)

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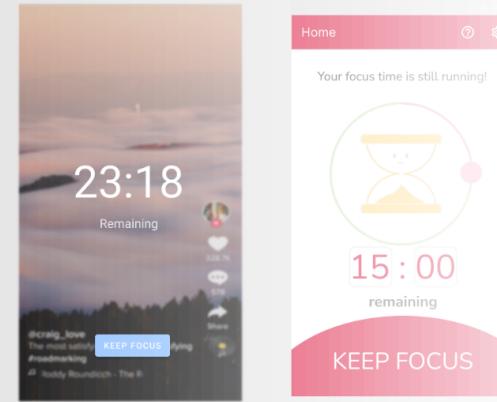
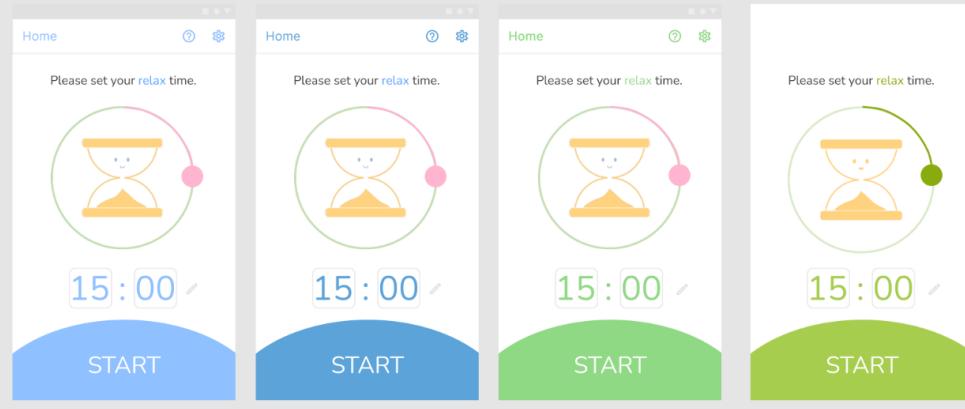
- Hourglass aims to limit the user's time spent on recreational apps so that the user would be less likely to procrastinate his/her work.
- It is implemented using Android Studio.
- For more details about the app: <https://istd.sutd.edu.sg/term4-design-exhibition/50001/hourglass>
- For more details about the problem statement and app plan: [https://docs.google.com/presentation/d/1Z6\\_wSVaj50bjzH9TIcDA6lpuKNgwe2SSIxTnVhbeQY/edit?usp=sharing](https://docs.google.com/presentation/d/1Z6_wSVaj50bjzH9TIcDA6lpuKNgwe2SSIxTnVhbeQY/edit?usp=sharing)
- Github: <https://github.com/Samillynn/HourGlass>



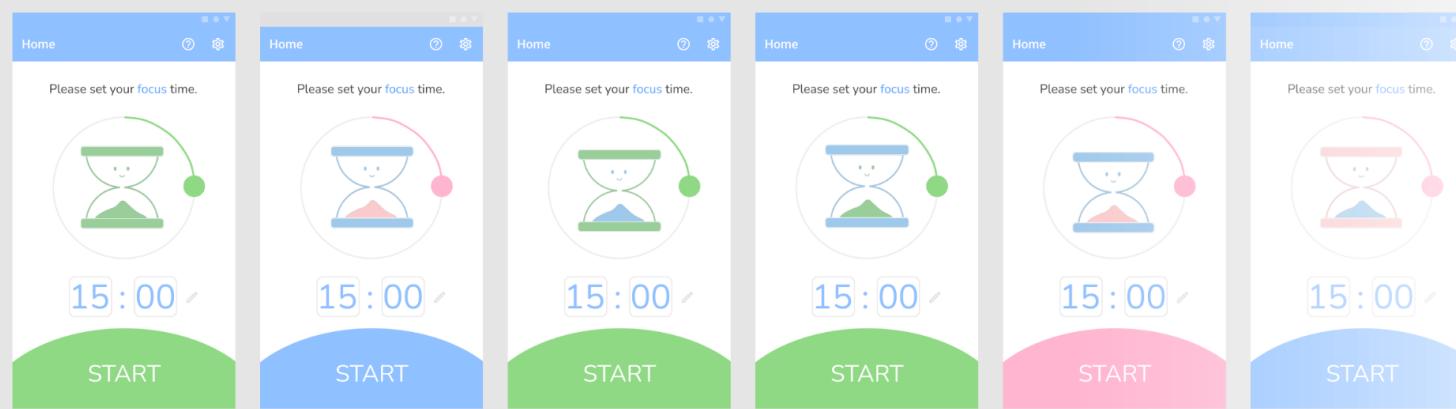
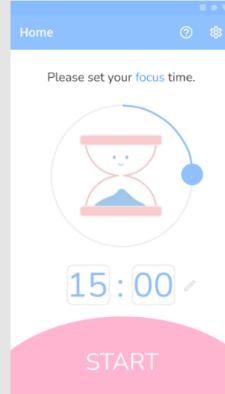
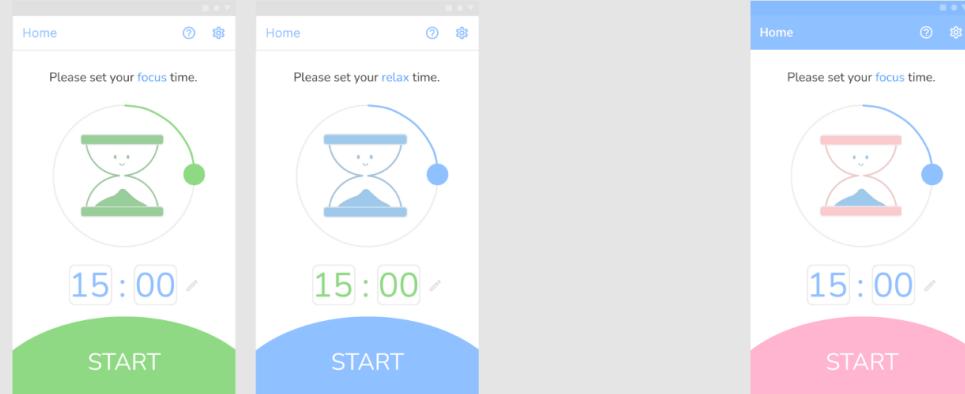
# Iterations for Hourglass App User Interface

- Drafted wireframes by sketching on paper, followed by presenting it using Figma.
- Decided to change the colour scheme as it feels rather dull and boring.
- Did not take into consideration how the user interface can be implemented in Android.

Figure 1: User Interface Draft



# Iterations for Hourglass App User Interface



- Used Android assets from the Figma community for better representation of user interface.
- Tried out different variations of colours with teammates
- Selected the one which looks the most pleasing to the eye.

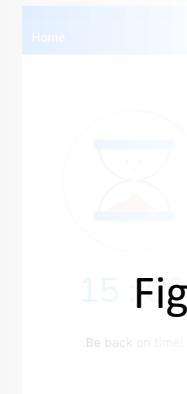


Figure 2: Variations of colours

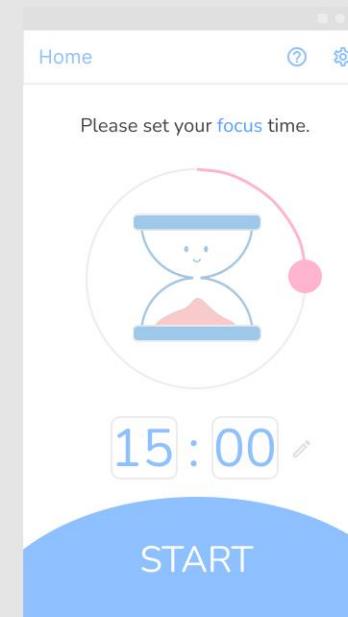
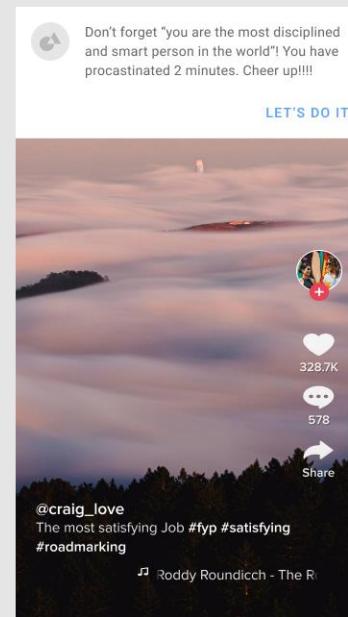
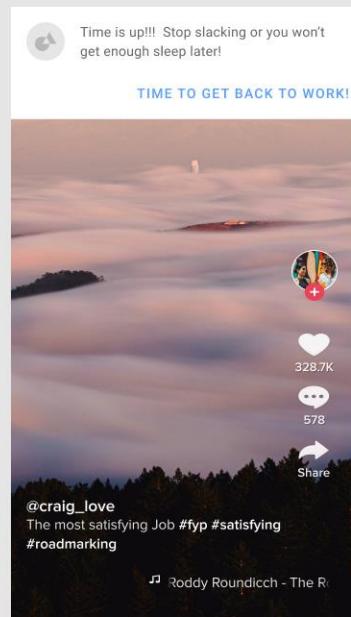
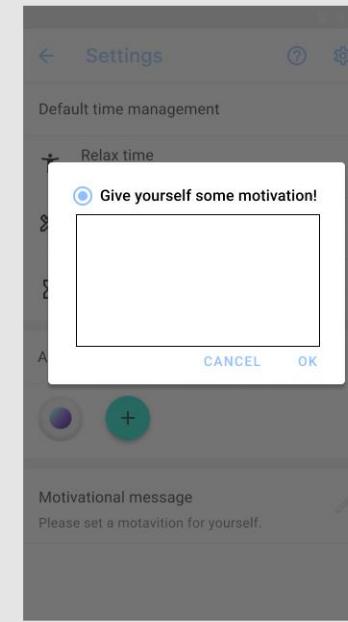
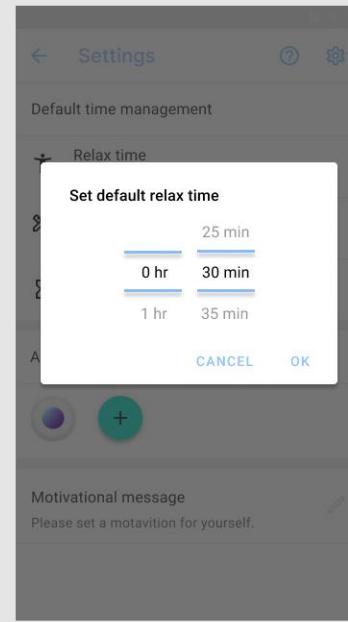
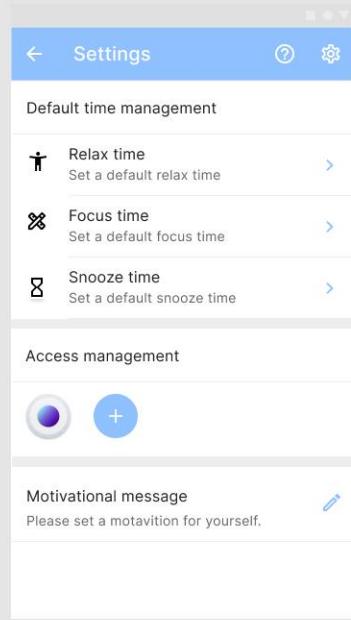
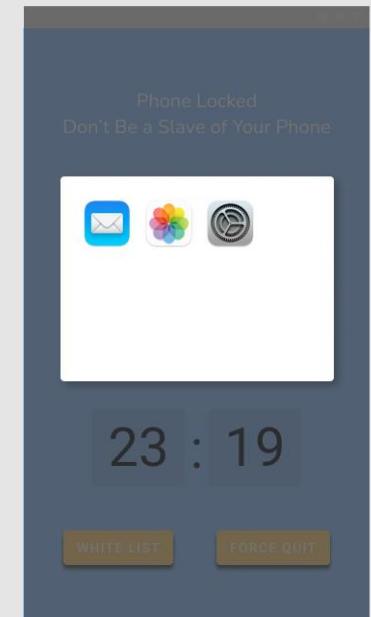


Figure 3: Final User Interface



# Iterations for Hourglass App Icon Design



- Drew the logos using Adobe Illustrator.
- Asked feedback from teammates.
- Decided to change the colour scheme as it feels rather dull and boring.
- Selected the hourglass with smiley face as it looks more friendly.

Figure 4: Use of random colour scheme

# Iterations for Hourglass App Icon Design

- Selected the hourglass with smiley face and sand as it looks more pleasing to the eye, and more feasible to be implemented in the app.
- Chose a new colour scheme which looks brighter and more cheerful.
- Asked teammates' feedback again and decided to use the last iteration (#14 in Figure 2).

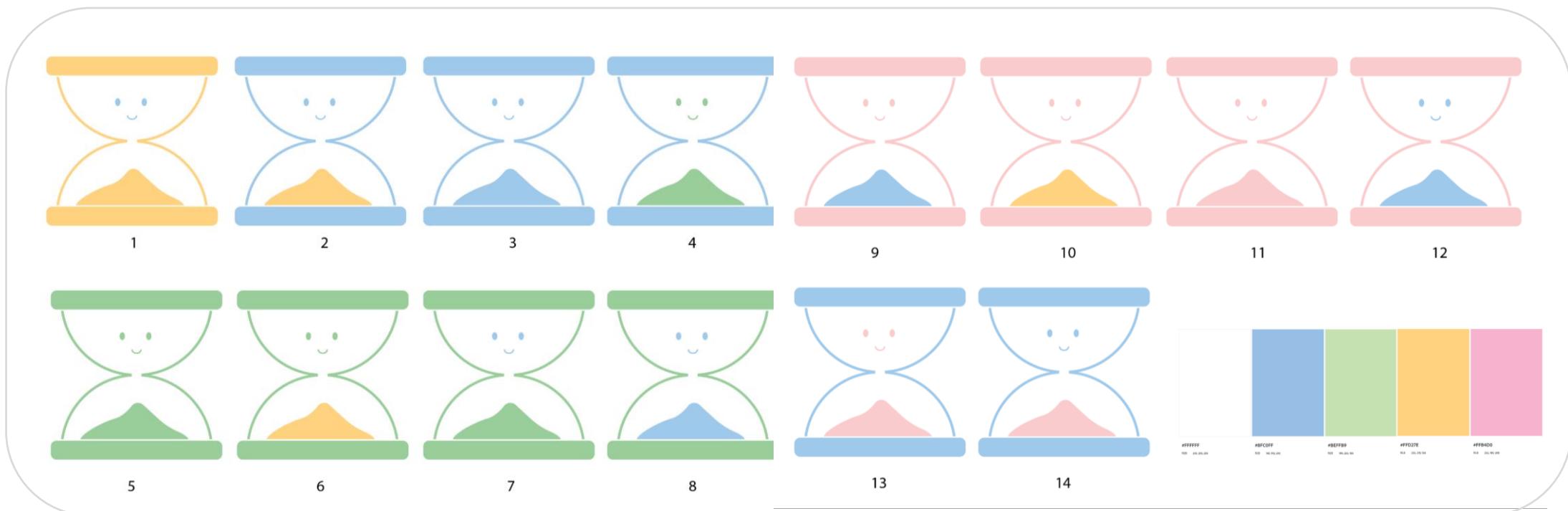


Figure 5: Use of brighter colour scheme

# Hourglass

TEAM 2A

1004881 Lin Yutian 1005513 Lee Pei Xuan  
1004873 Liu Renhang 1004882 Sun Zhengnan  
1004889 Meng Fanyi 1004578 Lim Si Hui Brenda  
1005259 Lim Hong Jun, Joshua

The app to set relax time, block phone distractions during work and help you be productive!

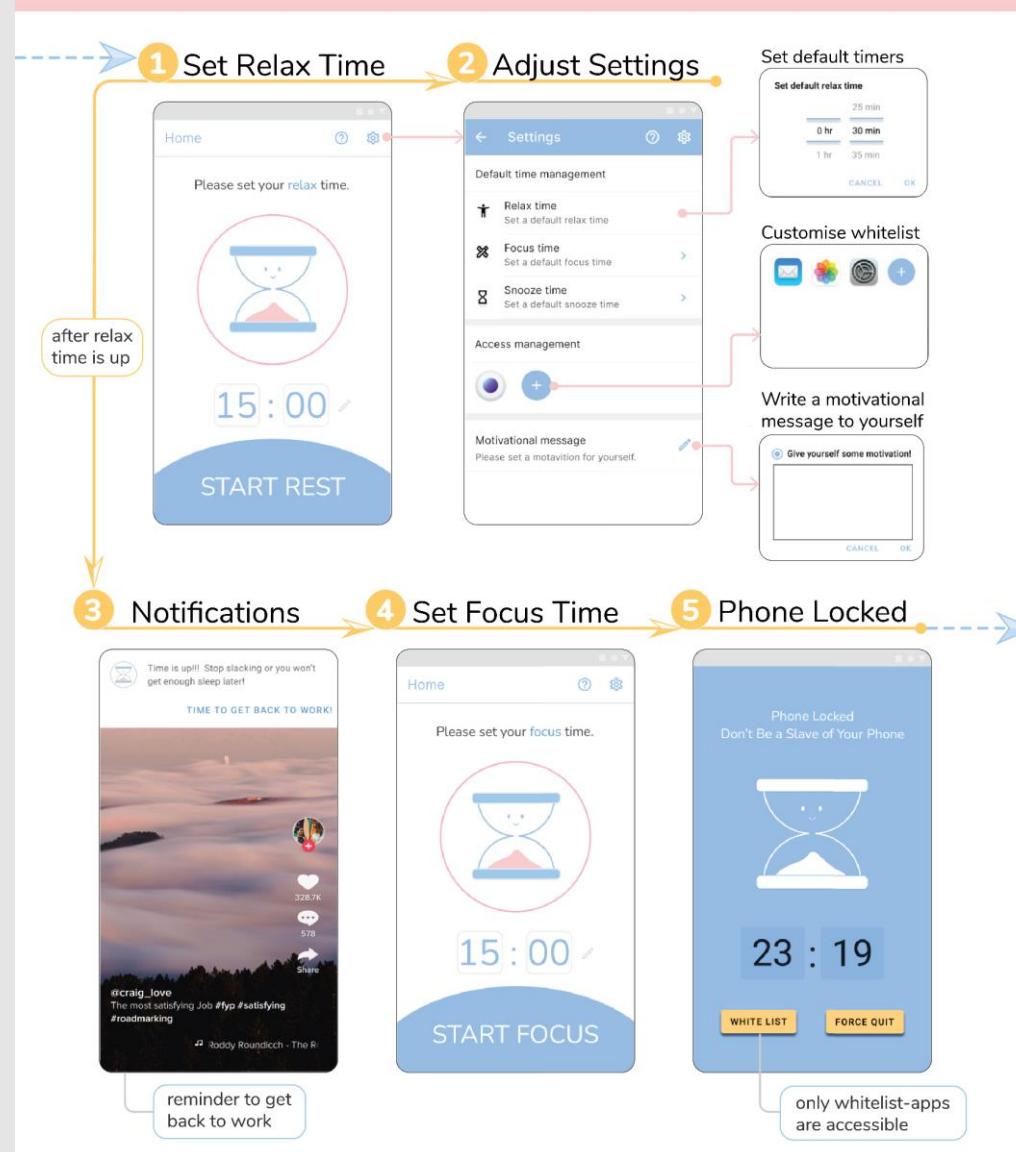


Figure 6: Presentation Poster

# Spending (Financial management App)

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- Spending allows users to set a budget and aims to keep track of their expenditure
- It is implemented using Android Studio.
- Github: <https://github.com/weihong0827/Spending>

Figure 7: Iteration 1

Colours A and B do not seem to match well

## Typology

Headings: Inter (size 18)

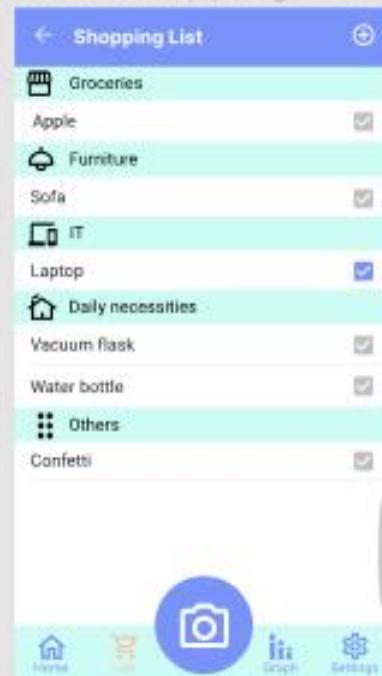
Other texts: Roboto



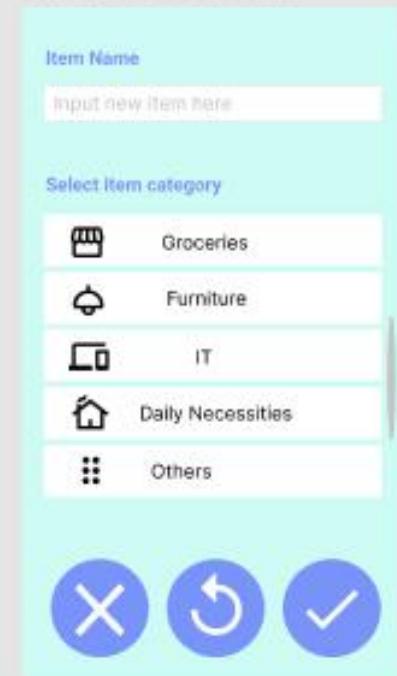
Final Homepage



Final Shopping List



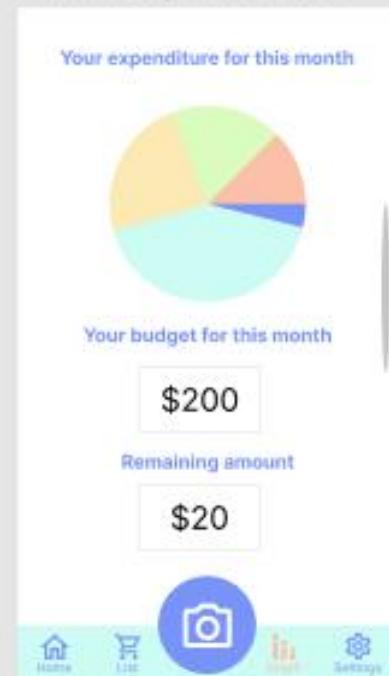
Final Add Item



Final Snap Receipt



Final Expenditure



Final Settings

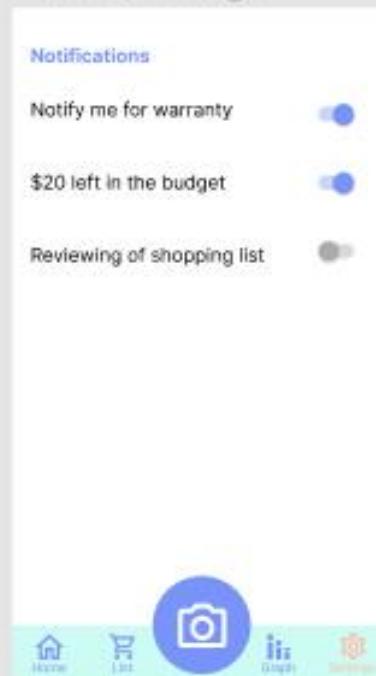
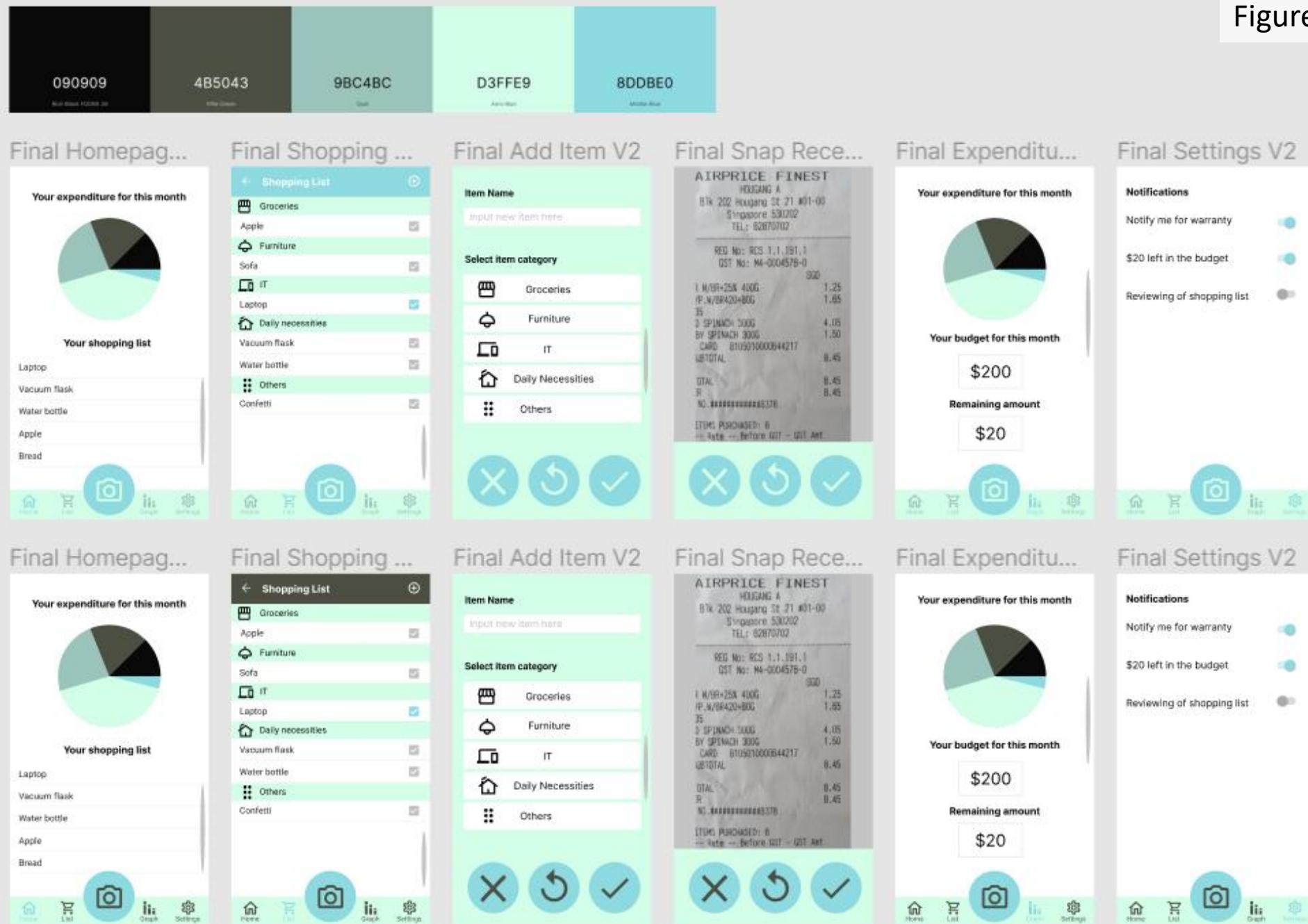


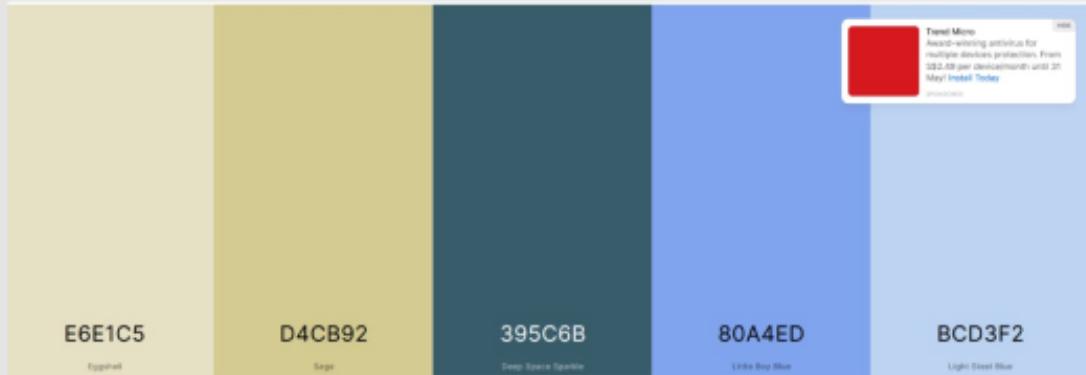
Figure 8: Iteration 2



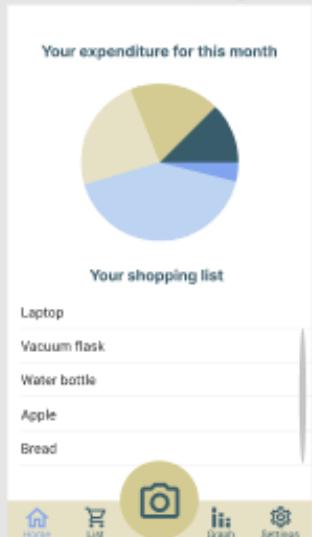


## App Icon

The 4 corners represent a camera snapping a picture of a receipt spending (\$)



## Final Homepag...



## Final Shopping ...

← Shopping List

Groceries
Apple
Furniture
Sofa
IT
Laptop
Daily necessities
Vacuum flask
Water bottle
Others
Confetti

Item Name

Select item category

Groceries
Furniture
IT
Daily Necessities
Others

X    ↻    ✓

Home List Graph Settings

## Final Add Item V2

Item Name

Select item category

Groceries
Furniture
IT
Daily Necessities
Others

X    ↻    ✓

Home List Graph Settings

## Final Snap Rece...

AIRPRICE FINEST HOUGANG 1A B1K 202 Hougang St 21 #01-00 Singapore 530202 TEL: 62870702

REG No: RCS 1.1.191.1 GST No: M4-0004578-0

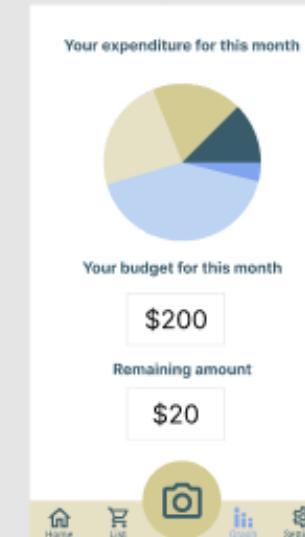
REG No: RCS 1.1.191.1
GST No: M4-0004578-0
ITEMS PURCHASED: 6
-- Rate -- Before GST - GST Act

ITEMS PURCHASED: 6

-- Rate -- Before GST - GST Act

Home List Graph Settings

## Final Expenditu...



## Final Settings V2

Notifications

Notify me for warranty
\$20 left in the budget
Reviewing of shopping list

Home List Graph Settings

Figure 9: Final UI and app logo

These colours feel the most relaxing.

# Other Projects

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- Designed posters to summarise main points with the aid of visuals.
- Illustrated diagrams using Adobe Illustrator.

# Declining Interest in Physics



F08 Group 4

Adriana, Brenda, Dion, Nathan, Nicklas

There has been a declining interest in physics among students as they grow older. In our project, we aim to **inspire a greater love** of learning physics through demonstrating the application of physics concepts in a working prototype. Students would build a simple **DIY speaker** in class that would **help them to understand** the mechanism of magnets and **how it can be applied** in real life. By providing students with a **fun experience** and a speaker to bring home, students would be more interested in learning about physics concepts.

“ The **boring**, **difficult** and **irrelevant** aspects of physics are among the predominant reasons reported as to why students held negative attitudes toward the subject (Williams et al., 2003). ”



“ The **heavy curriculum load** is also among the common perceptions students have about physics (Spall, Stanisstreet, Dickson, & Boyes, 2004). ”

- Quotes from: (On, Pei Tee, Emily & Subramaniam, R., 2011)

## Physics Concept

A **current** passing through a wire produces a **circumferential magnetic field around the wire** (Biot-Savart law). By coiling the wire, the direction of the magnetic field can be controlled by the direction of current. An **amplifier** feeds an **audio signal** in the form of an **Alternating Current (AC)** to the ends of a coil which is suspended in a magnetic field of a permanent magnet. The **coil moves back and forth** to the frequency of the AC as the **alternating magnetic field of the coil** interacts with the **permanent magnetic field of the magnet** (Law of Magnetism). The paper plate attached to the coil then **pushes and pulls the surrounding air** causing regions of **high and low pressure**, creating sound waves.

**Voice coil → Copper wire**  
conduct current to induce magnetic field

**Permanent ring magnet → Neodymium magnets**  
interacts with magnetic field induced by the coil

**Surround + spider → Paper "spring"**  
suspension system to help in translating coil movement to sound waves

**Former → Paper roll**  
to stabilise movement of coil

**Cone → Paper plate**  
translates coil movements into waves that travel through the air, perceived as sound by humans



Simplified cross-section of a speaker

Our prototype

Demo video link: <https://youtu.be/Dttfti9LWI>

## Data Collection and Analysis

I am not very good at physics but I really enjoyed making and playing with this homemade speaker. I think the explanation on how the speaker works can be a bit clearer though, I am still not very sure about how electromagnetism works.

Student A

Interviews with students after the activity show that DIY speakers make physics lessons more engaging.

The speaker idea is quite cool, but it didn't work when I tried to make it and I don't know why it is not working. That made me quite frustrated and upset.

Student B

## Design Consideration



Cost



Easy to make

## Limitations



Requires an amplifier which adds to cost



Time consuming

## Improvement

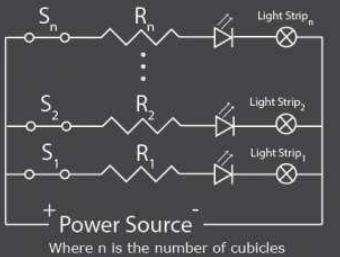


Assemble parts of speaker instead of building from scratch

Figure 10: Poster about DIY speaker for a Physics project

# Toilet Cubicle LED Sensor

Design 2D Component (Technological World)



F08 G4  
Adriana,  
Brenda,  
Dion,  
Nathan,  
Nicklas



## PHYSICS PRINCIPLES

A Light Emitting Diode (LED) and a light strip is used as a signal for an occupied cubicle in the toilet which lights up when the cubicle door is closed. The light strip is attached to the corner of the cubicle while the LED is attached to a layout board at the entrance of the toilet. The circuit is form with a power source (9V battery in this case), 220 Ohm resistors, LEDs, light strips and switches. Every door has its own switch, LED and light strip, hence the LED, light strip, resistor and switch for each door must be connected in parallel to the battery, such that closing and opening a door only affects one LED and light strip. The resistor is used to control the amount of current in the circuit between 20mA-30mA such that the LED does not blow.

We tried and tested 3 different switches namely Button Switch, Limit Switch and the Reed Switch. To see which switch fits best to our prototype, we open and close the doors 10 times each for each switch and see whether the LED and light strip lights up. The result is as shown in the pie chart below.

	Button Switch	Limit Switch	Reed Switch
Switches			
Success Rate			
Physics Principles	When the door closes, a force is applied onto the button thus closing the switch	When the door closes, a force is applied onto the lever thus closing the switch	A magnet is attached to the corner of the door, when the door closes, the magnet interacts with the reed switch and closes the circuit
Pros	Durable	Requires lesser force and precision on the placement compared to button switch	Contactless, reliable
Cons	Requires high precision on the placement of the switch for it to work	The lever is more vulnerable, breaks easier as compared to the button switch	Reliant on the magnet, if the magnet hits on the wall every time the door closes, it would eventually lose its magnetism and the circuit would fail. It is Fragile.

We released a survey among SUTD students to receive feedbacks regarding our physical prototype implementation in a public toilet. The result shows that majority of the students found it a good idea to put up LED light marking occupancy of a cubicle. However, some of our limitations of our product includes the reed switch being quite fragile, having the outer material made of glass. Our solution to this issue would be to cover the reed switch with a less fragile material, such as plastic. Another limitation is the large use of electricity by using a light strip on each cubicle; for future iterations, we can just remove the light strips to save electricity.

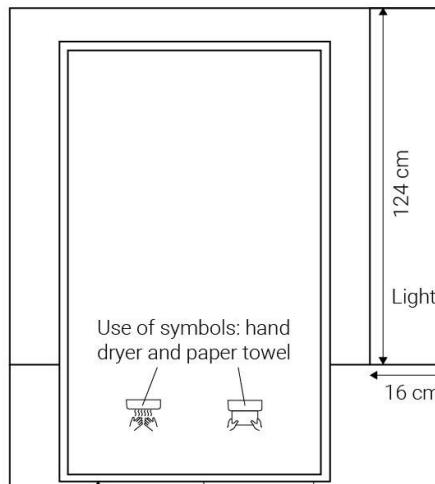
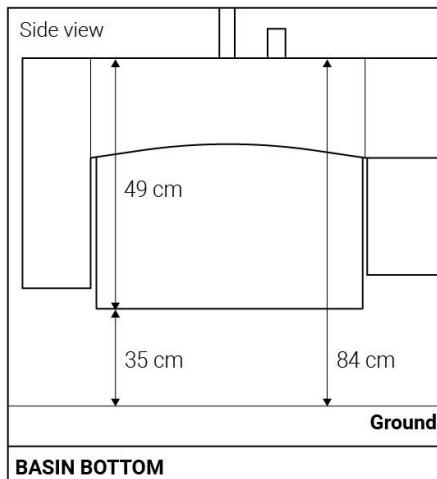
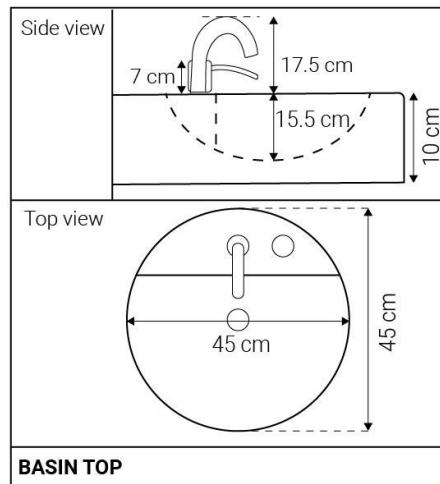
## EXPERIMENTAL DESIGN

## PROTOTYPE FEEDBACK

Figure 11: Poster about circuits for a project

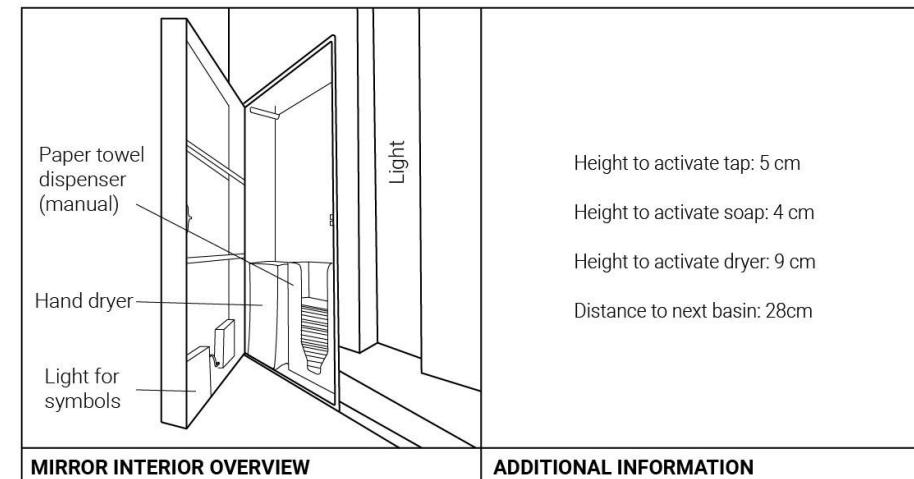
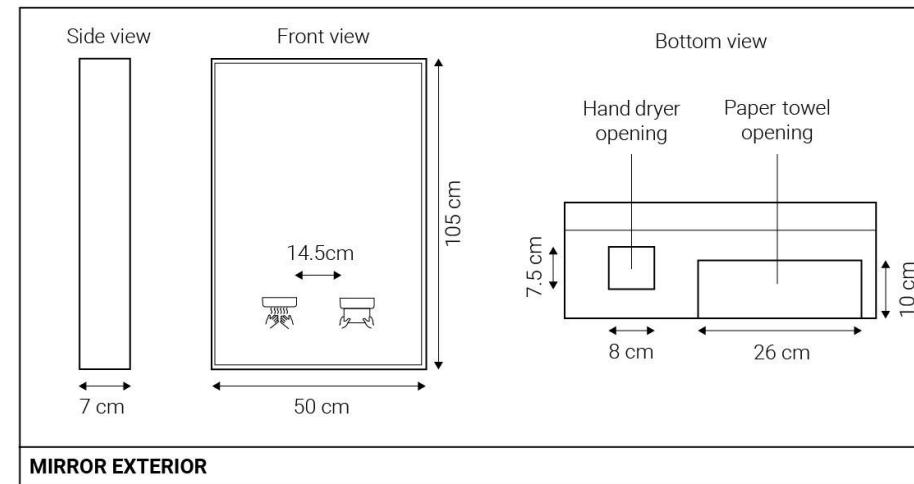
## Bathroom Vanity Set

Jewel Changi Airport Toilet at Level 5



## Bathroom Vanity Set

Jewel Changi Airport Toilet at Level 5



[Click here to view more details about the toilet project](#)

**Figure 12:** Tracing of real images using Adobe Illustrator

# Thank You

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These are the main visual designs that I have done.