

# Helping Young Adult Reduce the Risk Of Crossing the Road While Using Smartphone

# TimTam

## Name

## Roles

Name	Roles
Chia-Wen, Kao (Wen)	Frontend Engineer
Dai-Yun, Yiu (Zoe)	Project Lead
Ying-Tung, Chou (Elta)	UI/UX Designer
Kevin Christian Hadinata	IT Engineer

## Team Strength:

Combined, we have the ability to conduct professional research due to our previous common experience in **design thinking**. Our team also comprises people with various backgrounds and experience in **UI/UX design, web, and Arduino programming**. With these skills, we are confident that we would be able to deliver the project needed to fulfil the course's requirements in a highly efficient manner.

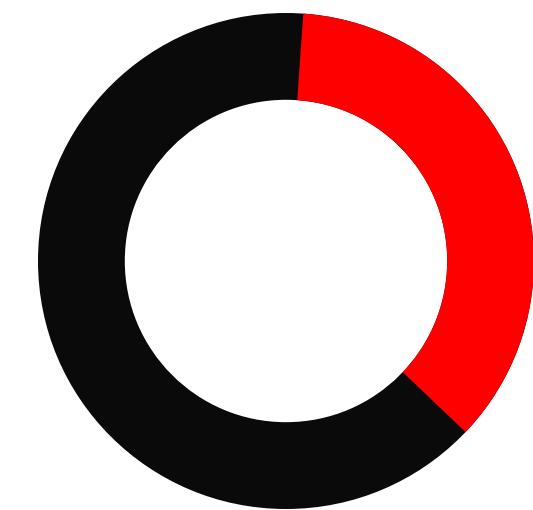
# Domain & Problem Space

In 2023,



Twenty-one per cent of road fatalities come from pedestrians, from a total of 1.19 million annual road traffic deaths (World Health Organization, 2023).

Additionally, in 2019, the National Roads and Motorists' Association (NRMA) (2019) revealed that



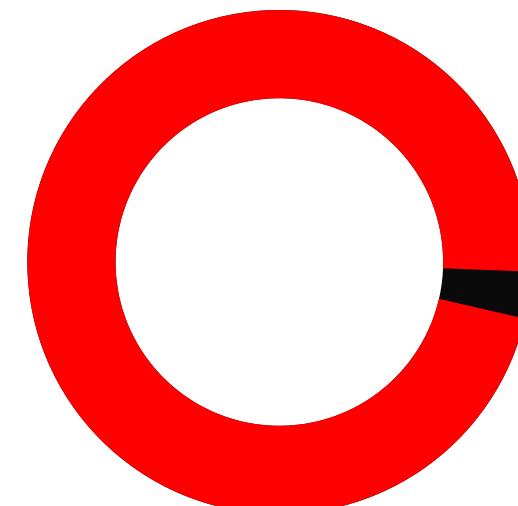
**36%** of pedestrians in New South Wales crossed the road while distracted by their smartphones.

and from that number...

**1,900**

pedestrians in New South Wales are killed or hospitalised from road traffic crashes each year.

So, why focus on **young adults**?



**97%** of people aged **18-29** are smartphone users (Pew Research Center, 2024)

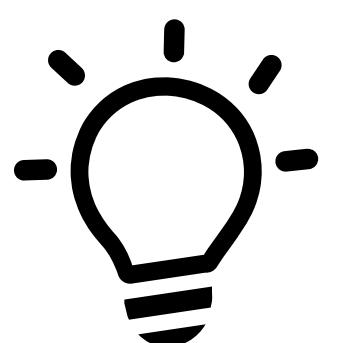
It becomes **addictive**:



**Nomophobia** (Anshari et al., 2019) and **FOMO** (Hou et al., 2022).

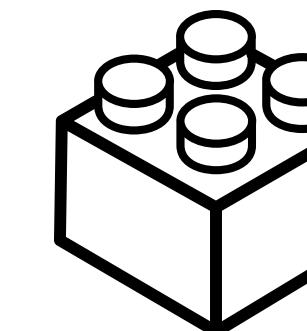
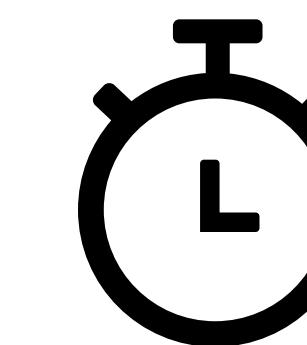
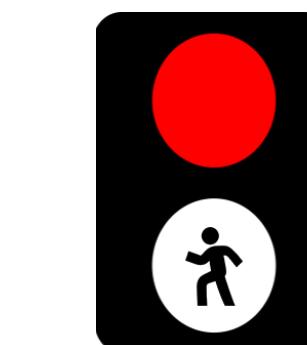


Smartphones release **dopamine**, making the user seek to replicate the experience in flow theory (Csikszentmihalyi, 1990).



Young adults **adapt** to the newest technology better than other age groups (Olson et al., 2011)

**It's way more dangerous.**



Walking is an **automatic** task (Clark, 2015). Therefore, they **multitask** (Chang, 2017; Hwang et al., 2014).

The "**safety**" **feeling**, so no need to check the traffic or surroundings (Aghabayk et al., 2021; Larue & Watling, 2022)

**18% increase in crossing time** (Gruden et al., 2021), while Dhone and Choudhary (2023) found that people disobey crosswalk signals because **they want to save time**.

Playing smartphone games while walking can **impair cognitive function and balance and miss what happens around them** (Haga et al., 2015).

## Design Opportunity - Existing Solutions

- Infrastructural: Signs (Jain et al., 2015), Lightings (Larue et al., 2021), Intersection Cameras (Zhang et al., 2019)
- Technological: GPS-based (Hwang et al., 2014), Shoe Sensors (Jain et al., 2015) ↔ Smartphone applications
- Challenges: Cost, Ethics & Privacy, Limited Use Cases



**Figure 1.**  
In-Ground Flashing Lights (Larue et al., 2021)



**Figure 2.**  
"WalkSafe" Application (Wang et al., 2012)



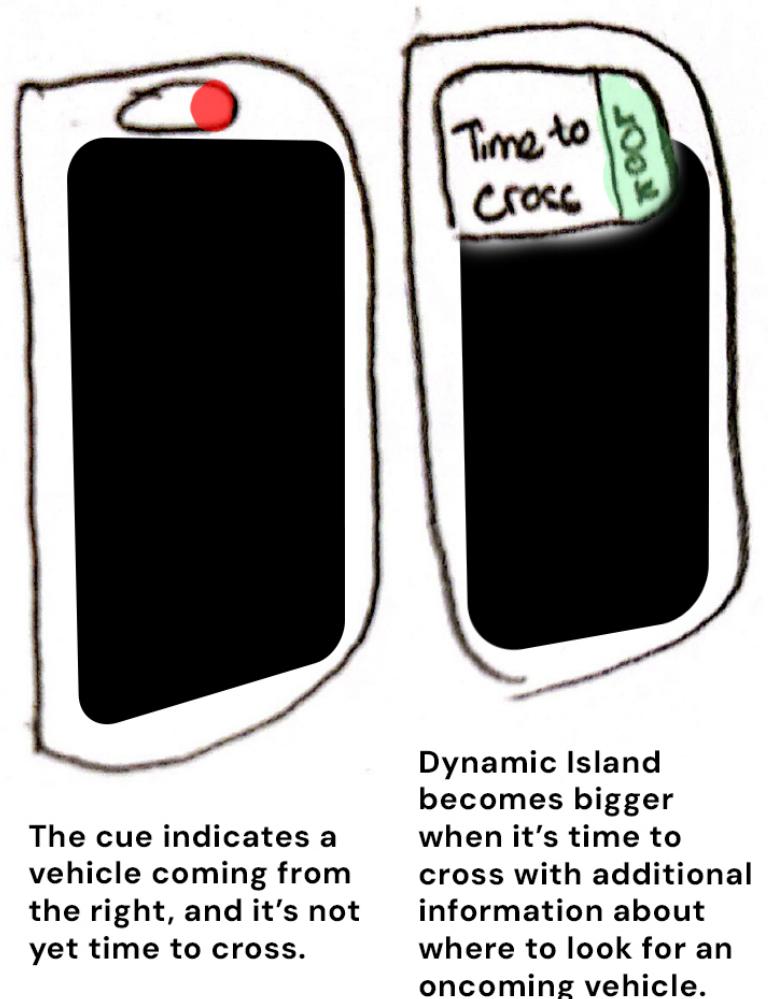
**Figure 3.**  
Signs on Crosswalks (Jain et al., 2015)

# Design Opportunity

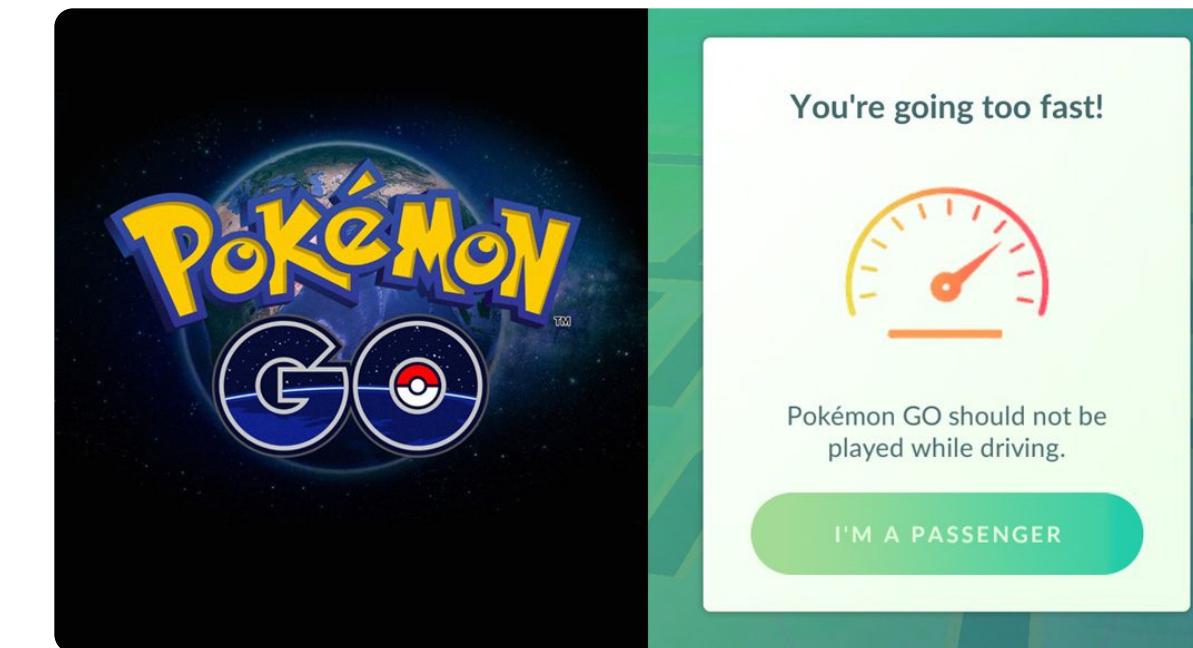
- It's better to create something **lightweight** for their smart devices and reduce the user's mental workload.
- People are **too immersed** in their smartphones, so we could develop **a feature to remind them to pay attention**.
- Since people often **struggle to control their smartphone use**, we can **educate** them on how to use technology more mindfully and develop better habits.

## Possible Direction

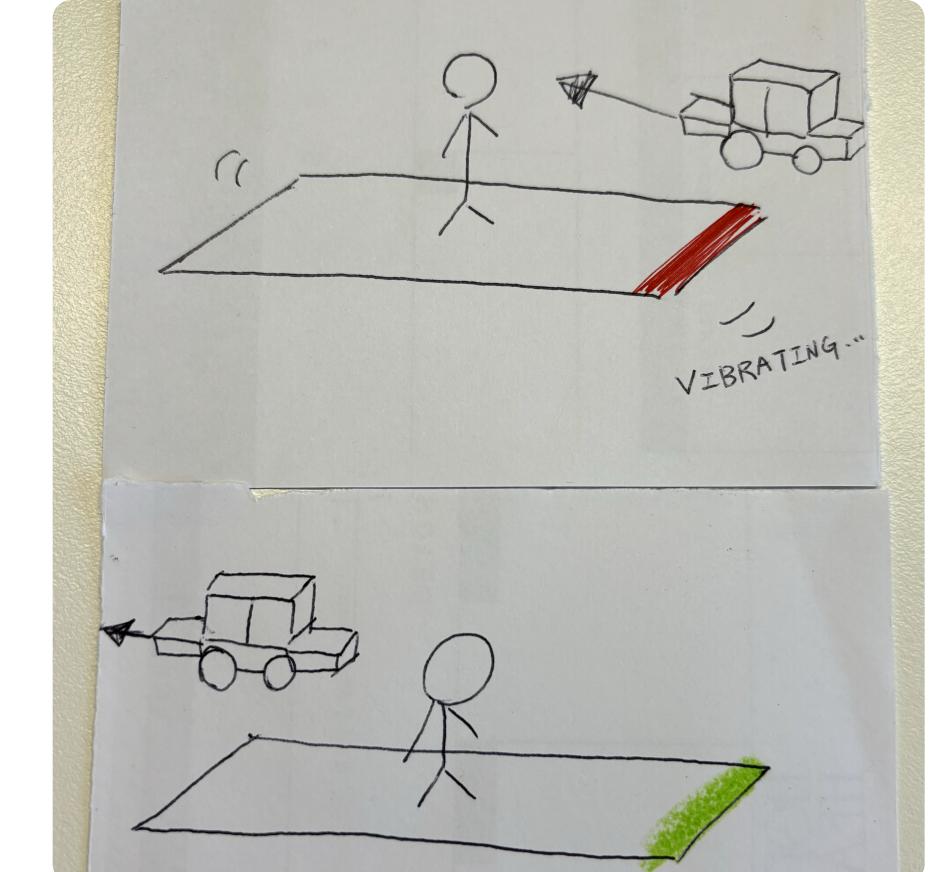
- Phone **widgets/extensions/plugins** that remind users of the direction from which a car is approaching.
- **A reminder system** that detects users walking and alerts them to stop using their smartphones.
- **Vibrating or interactive floors** at intersections with indicators showing the direction of approaching cars to remind users (see Figure 6).



**Figure 4.**  
Dynamic Island  
for reminding  
car approaches.



**Figure 5.** Reminder alert from Pokemon  
(eDriving, 2016)



**Figure 6.** Interactive floor with indicators

# Plan of Work & Methods

Week 6	Week 7	Week 8	Week 9	Week 10
<b>User Research</b> <ul style="list-style-type: none"><li>• Observation<ul style="list-style-type: none"><li>• Place: Uni, Queen Street</li></ul></li><li>• Design and Implement Probes<ul style="list-style-type: none"><li>• Physical / Digital</li></ul></li></ul>	<b>User Research</b> <ul style="list-style-type: none"><li>• Questionnaire<ul style="list-style-type: none"><li>• Purpose: Collect potential interviewees and explore their smartphone habit.</li></ul></li><li>• Interview<ul style="list-style-type: none"><li>• Purpose: Understand why they use smartphones while walking and identify potential addiction issues.</li><li>• Participants: 8 young adults, aged 20-30, with experience using smartphones while walking.</li></ul></li></ul>	<b>User Research</b> <ul style="list-style-type: none"><li>• Analyze Results<ul style="list-style-type: none"><li>• Method: Card Sorting, Affinity Diagram</li></ul></li><li>• Proposed Solutions</li><li>• Interview<ul style="list-style-type: none"><li>• Purpose: Understand the target audience's thoughts on the proposed solutions.</li></ul></li></ul>	<b>Low-Fi Prototype</b> <ul style="list-style-type: none"><li>• Decide Final Solution</li><li>• Wireframe</li><li>• Non-functional prototypes</li></ul>	<b>Iteration</b> <ul style="list-style-type: none"><li>• User Testing: Think-aloud</li><li>• Evaluation &amp; Iterate Solution</li><li>• Functional Prototype</li></ul>

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