

Climate-Sense: Community Hackathon Prototypes



About These Ciamte–Sense: Community Hackathon Prototypes

Across four community hackathons, more than 80 youths, caregivers, delivery riders, and community volunteers turned findings from HeatAware SG into 16 tangible cooling concepts for seniors, delivery riders, and children. Each prototype below was built and pitched within a single afternoon, using materials like tape, gel packs, cardboard, and basic electronics, with AI coding tools introduced in later runs.

How to Read This Document

Each prototype is presented with its problem statement, an honest breakdown of feature practicality, a photo of the physical build from the hackathon floor, and, where applicable, an AI (Artificial Intelligence)-generated concept image showing what a more polished version could look like.

A Note on What These Prototypes Are

These are early-stage, single-day hackathon concepts, not finished or commercially available products. The "Feature Practicality" notes are the participants' own candid assessments of what worked, what didn't, and what would need to change before an idea could go further. Treat this less as a product catalogue and more as a record of what a community came up with when handed the tools and the trust to build.

PROTOTYPE 1

Cool Wisdom

Feature Practicality

Cooling packs

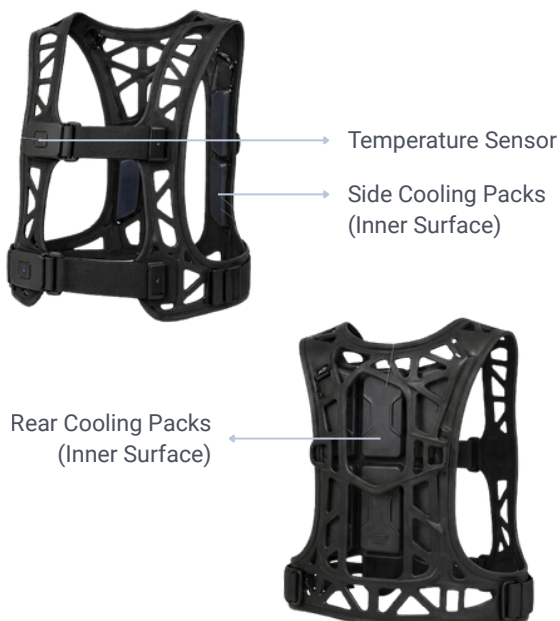
Function effectively as a short-term solution for cooling.

Vending machine ecosystem

Not very realistic, as operating costs have to be factored in to fund free cooling pack exchanges.

Vest

Skeletal structure makes it easy for riders to wear, but the existence of cooling packs results in additional weight, which may deter usage.



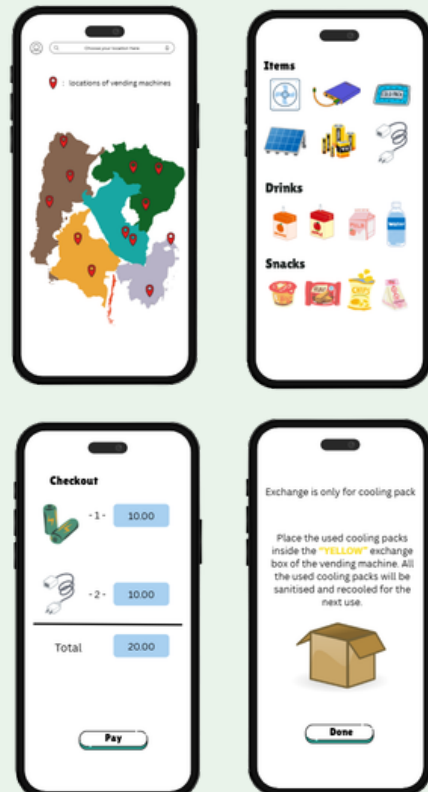
Conceptualised product (AI-generated)

Problem Statement

How might we help delivery riders cool down between deliveries on hot days?



Cooling Vest (Prototype)



Vending Machine Location Map + App Interface (Prototype)

Anti-Heat

Problem Statement

How might we help delivery riders cool down between deliveries on hot days?

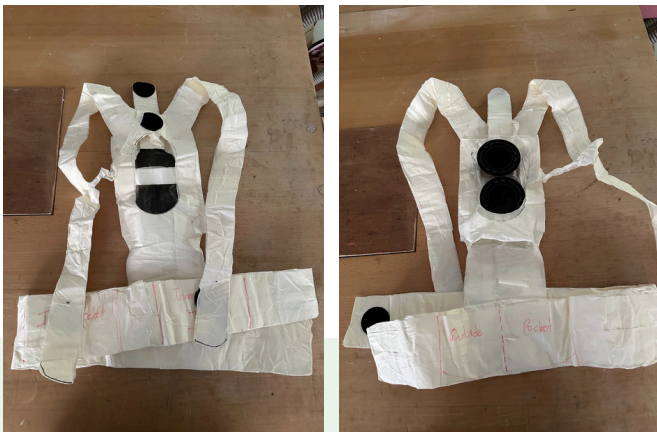
Feature Practicality

Vest

- Potable water bag cooled by 2 peltiers: Practical feature, but may result in faster depletion of the vehicle battery to power the peltier. Water bag design should also balance size and weight to ensure sufficient capacity and weight
- Inner pockets originally designed to fit cooling packs: Riders may deem it annoying to keep changing out cooling packs.

App

- Indicates locations of Community Centres, water dispensers and hottest spots currently: Riders may not utilise this feature frequently, as they may be more focused on making deliveries on time
- Plans routes that subject the rider to less heat exposure: Good feature, especially on days with extremely hot weather



Cooling Vest (Prototype)



Conceptualised product (AI-generated)



Travel Route Planner

PROTOTYPE 3

Cooling Stroller

Problem Statement

How might we redesign preschool outdoor time to build children's heat acclimatisation?

Feature Practicality

Dual Fans

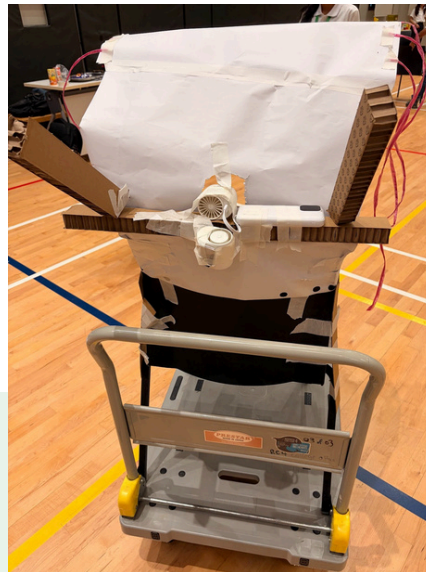
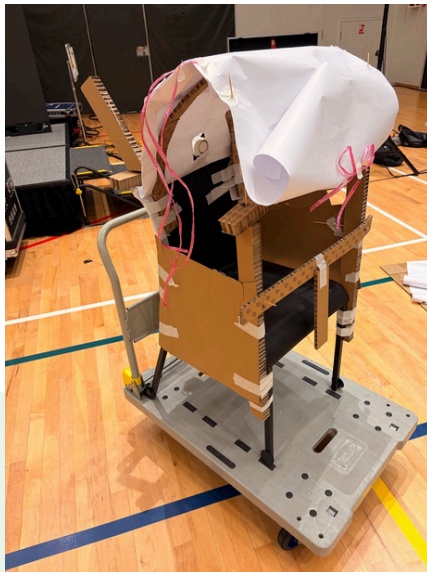
To achieve effective cooling, a certain fan speed and size would be required. However, this also raises the question of where the power source should be located.

Alternatively, the fan can be removable, but that pits it against much competition in the stroller accessory market.

Cooling Seat

Typical implementation involves gel making contact with skin through a layer of fabric. However, it is unclear what is to happen to the gel when it reaches room temperature.

Prototype



Conceptualised product (AI-generated)



PROTOTYPE 4

Cooling Wearable Set



Cooling shirt (Prototype)



MagSafe back cooler (Prototype)

Problem Statement

How might we redesign preschool outdoor time to build children's heat acclimatisation?

Feature Practicality

Slap-on personalisable detector

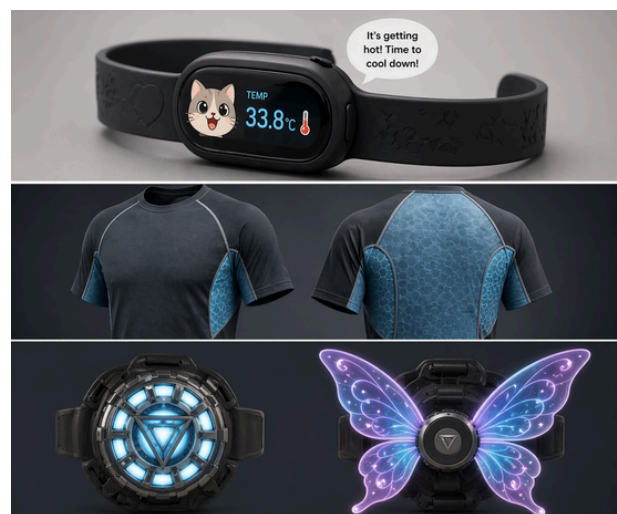
Innovative idea that engages children. However, depending on age, they may not be able to understand the heat warnings. Additionally, considering children like to run about, component durability must also be guaranteed.

Heat-dissipative shirt

Not very realistic, as Dri-FIT shirts exist.

Personalisable cooler

Plausible feature. A major factor to consider is the strength of the magnet, as it will be crucial in securing the cooler to the back.



Conceptualised product image (AI-generated)

PROTOTYPE 5

Heatbuster

Problem Statement

How might we redesign preschool outdoor time to build children's heat acclimatisation?

Feature Practicality

Detachable Flaps

Plausible, as it is a feature of pre-existing market products.

Temperature Sensor

Good to have this to warn children about the temperature, but it has to be visible enough.

Cooling gel at top

Usage in hot weather may require frequent replacement, which is not realistic in outdoor scenarios.



Heatbuster (Prototype)



Heatbuster (Prototype)



Conceptualised product image (AI-generated)

PROTOTYPE 6

SolaCool Bench

Problem Statement

How might we redesign preschool outdoor time to build children's heat acclimatisation?

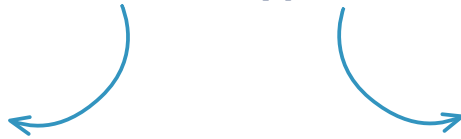
Feature Practicality

Cool Benches

Applicable in Singapore's context, however, there is a need to consider power supply and a potential replacement for the peltiers



SolaCool Bench Prototype



Conceptualised product image (AI-generated)

PROTOTYPE 7

Cooling Stroller

Problem Statement

How do we help delivery riders cool down between deliveries on hot days?

Feature Practicality

Fan (neck and back)

Not very realistic, as neck fans are more portable but serve the same function

Cooling pack at the back

Can work with fans to cool consistently until they run out of power, in which case a replacement function has to be implemented

Cooling Stroller Prototype



Conceptualised
product
(AI-generated)

PROTOTYPE 8

Cooling Hoodie

Problem Statement

How might we redesign preschool outdoor time to build children's heat acclimatisation?

Feature Practicality

Colour-change

An innovative feature to warn children about temperature. How this is done, however, has to be examined.

Removable sleeves

Not very realistic for children to be utilising this feature frequently.

Hoodie with cooling gel

Plausible feature. On the other hand, the cooling gel may end up making the hoodie heavy, making it uncomfortable to wear.

Cooling Vest (Prototype)



Conceptualised product (AI-generated)



PROTOTYPE 9

Cool Cape

Problem Statement

How do we help delivery riders cool down between deliveries on hot days?

Cool Cape Prototype



Conceptualised product (AI-generated)



PROTOTYPE 10

Frosty Vest

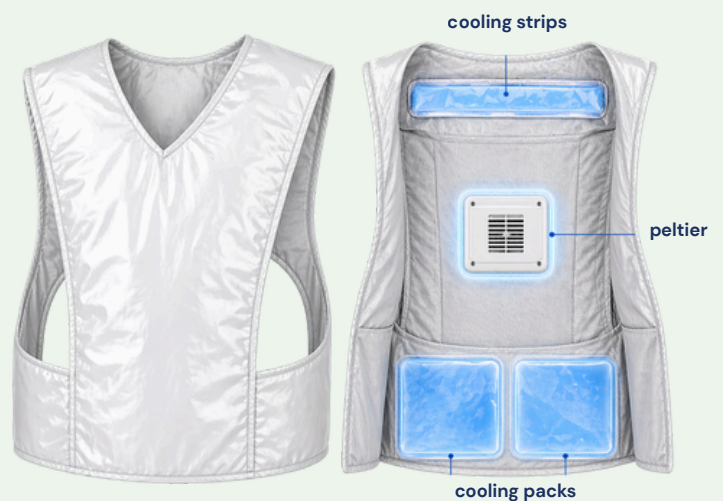
Problem Statement

How might we help seniors stay active outdoors in warm weather?

Prototype



Conceptualised
product (AI-generated)



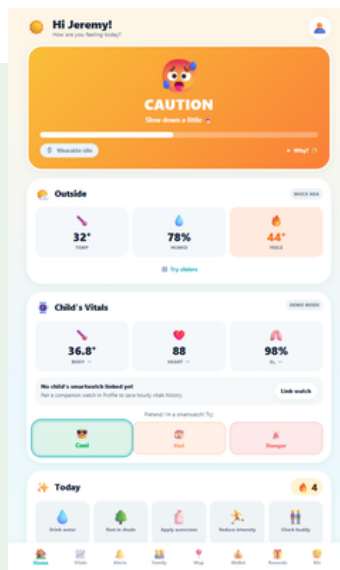
PROTOTYPE 11

HeatSafe Kids

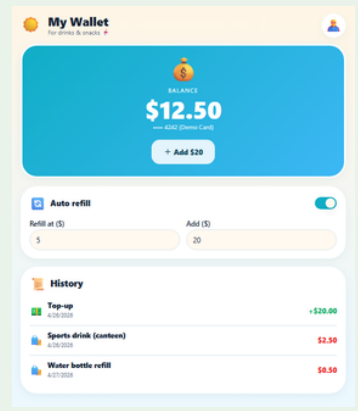
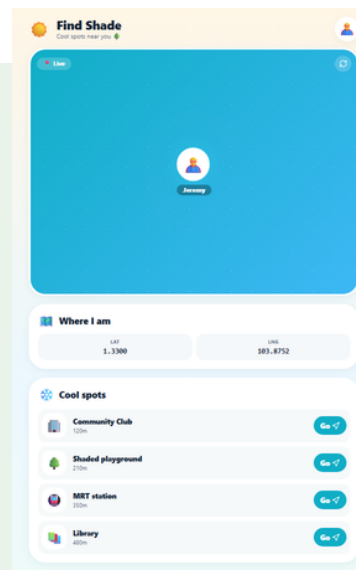
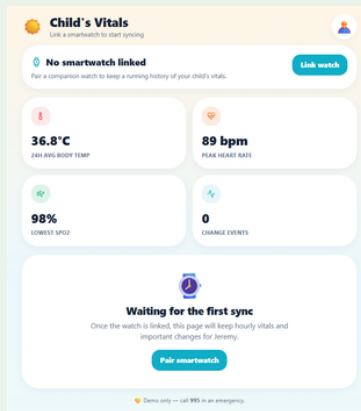
Problem Statement

How might we redesign the preschool outdoor day to gradually and playfully build heat acclimatisation in children?

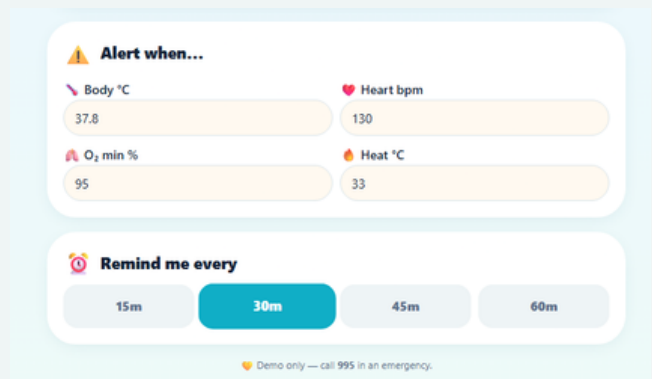
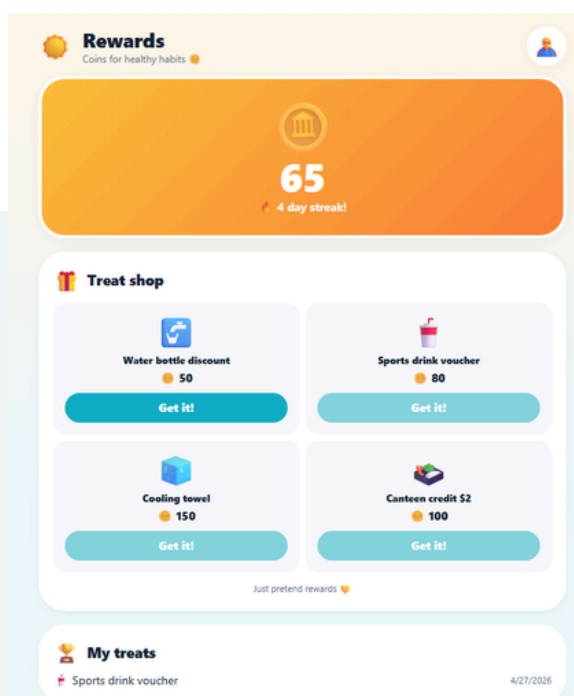
Prototype



App interface: Home, Vitals



App interface: Find Shade, wallet



App interface: Alert settings

PROTOTYPE 12

Garden-Safe

Problem Statement

How might we incorporate other sensors and/or mechanisms into wearables with motion-sensing, audio, Bluetooth, and Wifi features to enable seniors to safely enjoy gardening and exercise outdoors during warmer weather?

Feature Practicality

Regular pop-up hydration reminders

Effectiveness heavily depends on the individual's self discipline to hydrate themselves when they are reminded to.

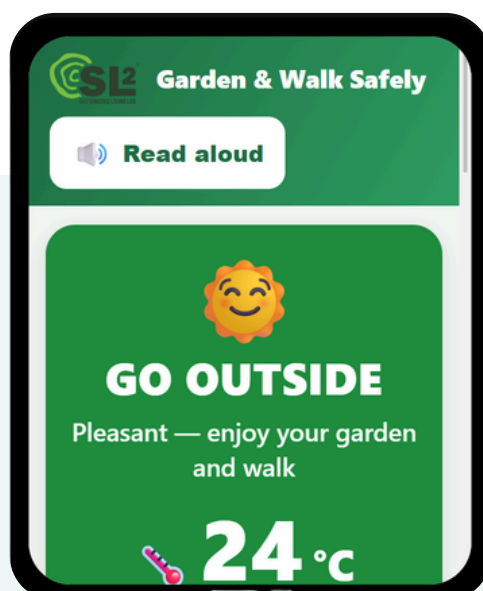
In-built fall detector

This feature can come in handy, but sudden motion can also set off false alarms.

Customisable settings such as temperature units and alarm setting

Good to have, but seniors may not bother tinkering with this feature due to a lack of understanding or interest

Wearable Prototype



PROTOTYPE 13

Hydration Watch

Problem Statement

How might we incorporate other sensors and/or mechanisms into wearables with motion-sensing, audio, Bluetooth, and Wifi features to enable seniors to safely enjoy gardening and exercise outdoors during warmer weather?

Feature Practicality

Hydration reminders based on time of day

Effectiveness heavily depends on the individual's self discipline to hydrate themselves when they are reminded to.

Coloured borders depending on environmental temperature

A straightforward visual representation of surrounding heat.

AI voiceover

Helpful for seniors hard of hearing.

Emergency alerts for poor health

It is good for alerting seniors about potential heat risks, but falls a little short if they require external assistance.

Wearable Prototype



PROTOTYPE 14

WatchFit

Problem Statement

How might we incorporate other sensors and/or mechanisms into wearables with motion-sensing, audio, Bluetooth, and Wifi features to enable seniors to safely enjoy gardening and exercise outdoors during warmer weather?

Feature Practicality

Step/heart rate/blood oxygen tracker

Not very useful considering a majority of other wearables also have this feature.

Water intake tracker

May not be very useful as compared to other prototypes as it requires active input from the user.

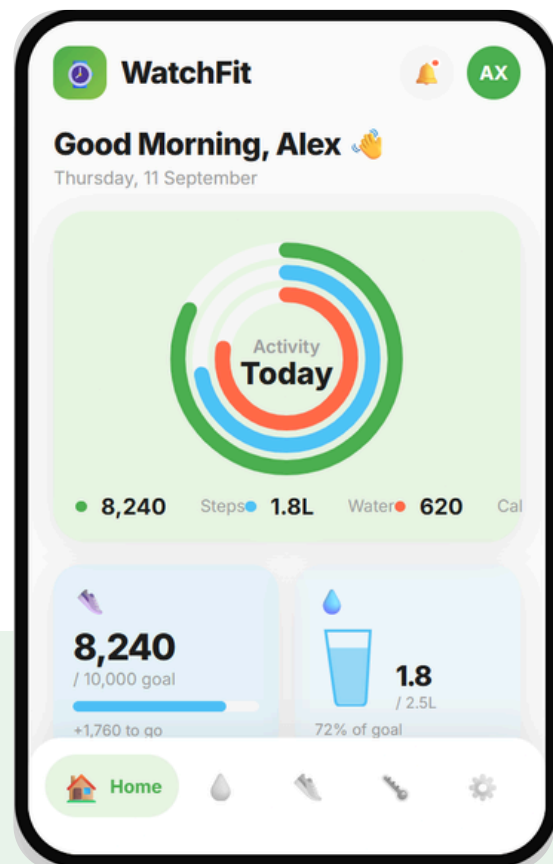
Body temperature tracker

May prove useful in hot weather.

Stress level/sleep score tracker

May provide insight for overnight rest in hot weather.

Prototype



Wearable Prototype

Climate Dashboard

Problem Statement

How might we incorporate other sensors and/or mechanisms into wearables with motion-sensing, audio, Bluetooth, and Wifi features to redesign playschool outdoor time to gradually and playfully build heat acclimatisation in children?

Feature Practicality

Tap-based hydration tracker

Effectiveness depends heavily on self-discipline of the user.

Hydration reminders

Serves as regular check-ins for the target audience to drink water.

Temperature diagram

Good visual representation for children who may not be able to associate heat with numerical indicators.

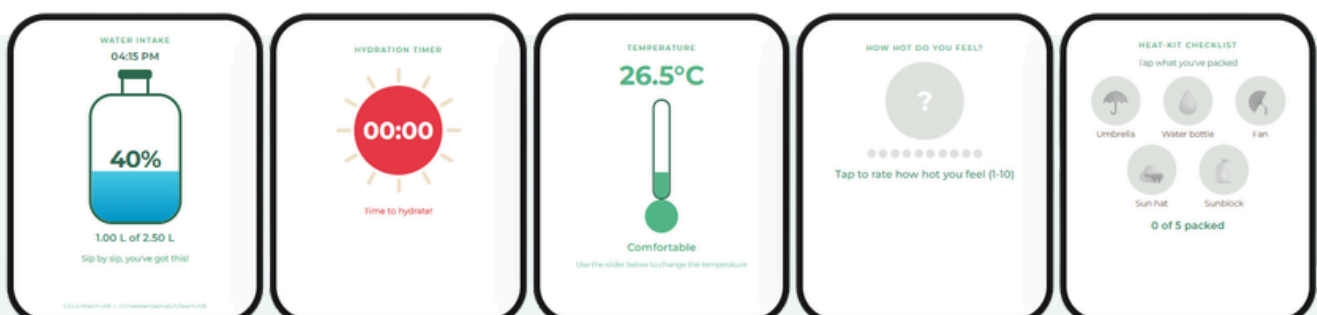
Wellbeing self-assessment tool

Good for children to have a grasp on their wellbeing in environments of intense heat.

Heat-kit checklist

Serves as an actionable guideline for those going out in hot weather.

Prototype



Wearable Prototype

PROTOTYPE 16

Cool Crew

Problem Statement

How might we incorporate other sensors and/or mechanisms into wearables with motion-sensing, audio, Bluetooth, and Wifi features to redesign playschool outdoor time to gradually and playfully build heat acclimatisation in children?

Feature Practicality

Hydration goals and minigames

Incentivises children to actively monitor their own water intake.

Quest list and reward store

Builds on the previous function to construct a system that motivates the target audience to take action to reduce heat illness risk.

Water intake tracker

Integrates the physical movement of drinking with tracking, may be useful.

Rest reminders

May be more effective if combined with physical sensations such as vibrating to get the user's attention.

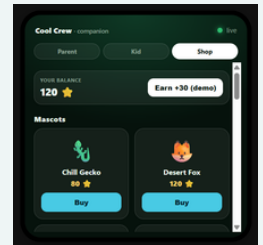
Heat index

Simple visualisation of what the temperature feels like outside, but children may not fully grasp the implications of high temperatures.

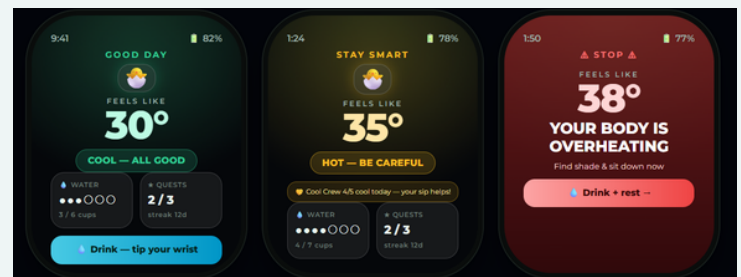
Prototype



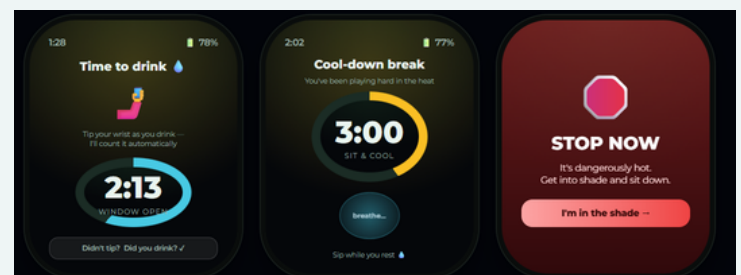
Wearable Prototype



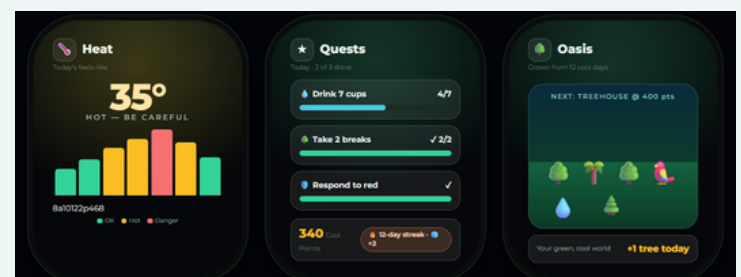
Companion Shop



Statuses



Hydration, Cool-down, Alerts



Heat, Quests, Oasis