



# I-Care

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# Problem Definition

**How can we build an AI-based solution to improve mental well-being amidst the COVID-19 pandemic?**

The prolonged Covid-19 pandemic has taken a toll on global mental health. The fear of infection, changes in our daily routine and social isolation brought about by safe management measures, as well as economic uncertainty has led to a **sharp increase in stress levels.**

This has resulted in **increasing levels of depression and suicidal tendencies.**





# MENTAL HEALTH IN SINGAPORE



**4 in 10** respondents considered suicide at some point



**11.4%** of elderly suffer from mental disorders

**13%** of respondents thought about suicide at least once a week

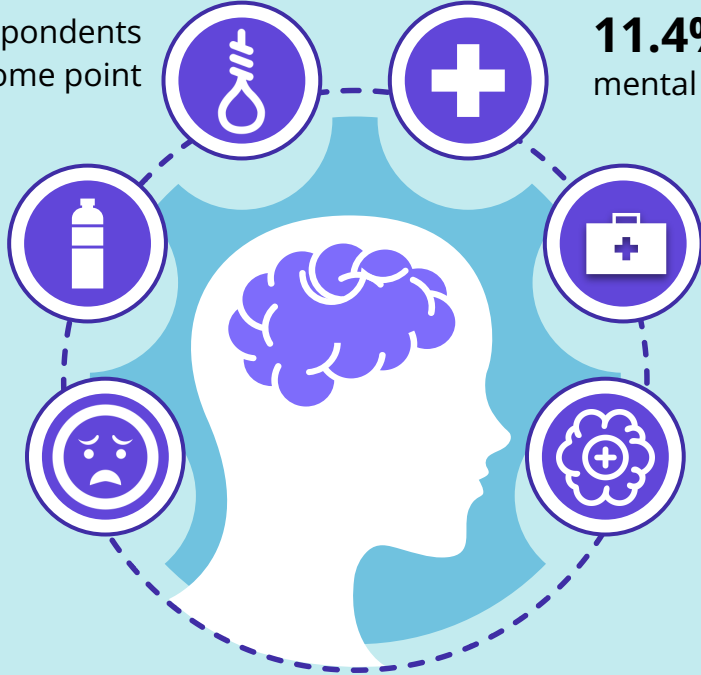


**78.4%** of who experienced a mental illness in the past year did not seek treatment

**1 in 3** adults experience COVID-19 related psychological distress



**52%** of youth struggle with mental health issues



# Our Solution

## I-Care

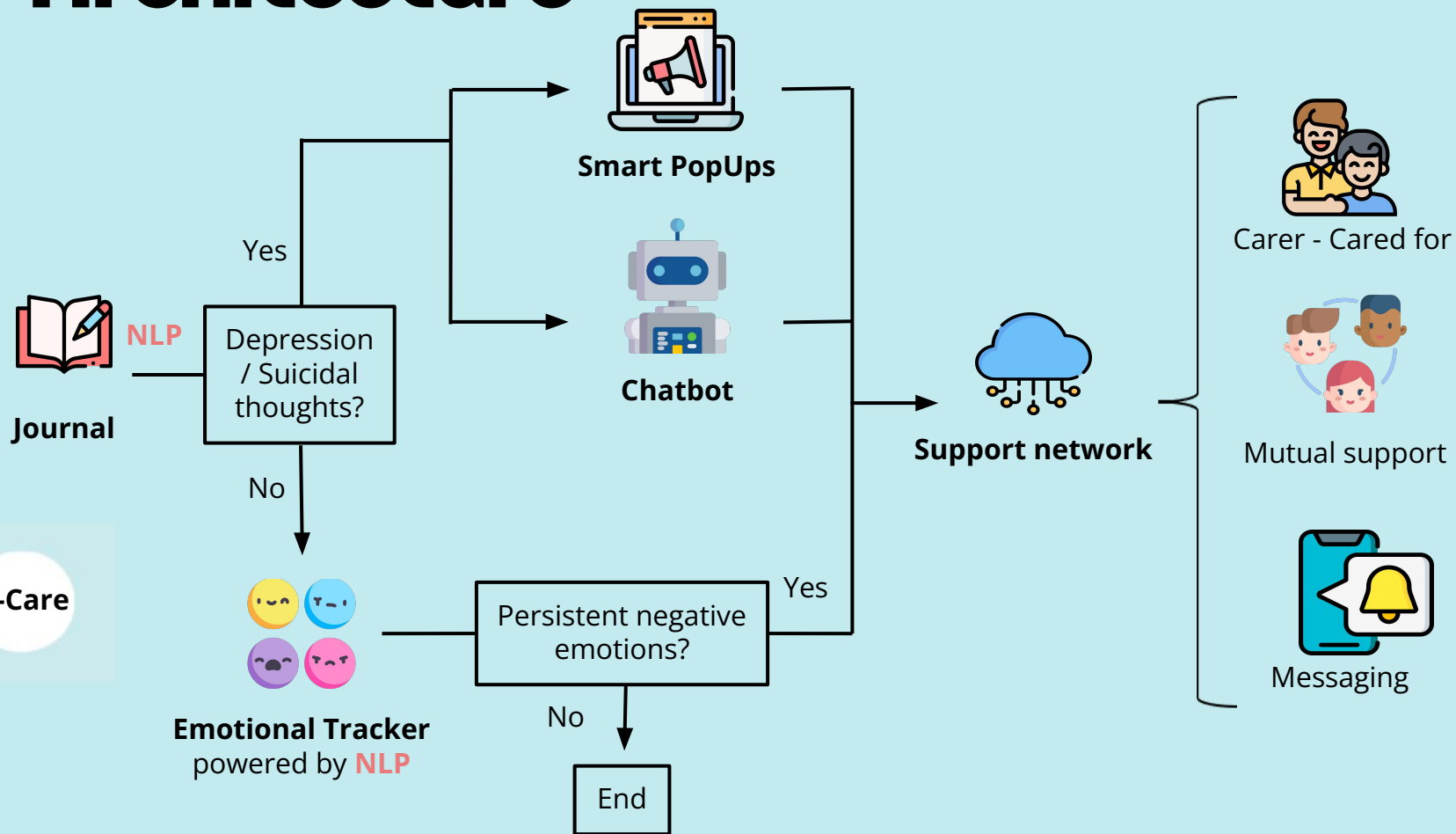
An integrated self-care journaling mobile application that seeks to improve mental health well-being, powered by Natural Language Processing to track users' emotions and mental health progress



I-Care



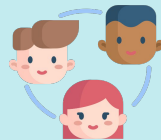
# Our Architecture



# Key Features

## Integrated Journal

Safe space for users to express and log their emotions

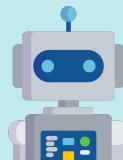
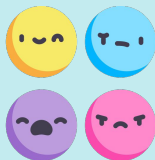


## Support Network

Customizable support network with friends or family via messages and sharing of emotional tracker

## Emotional Tracker with Motivational Popups

Powered by NLP to classify the user's general mood of the day



## Multi-Functional Conversational Chatbot

Provides a safe space for people who are afraid to seek help

## Natural Language Processing

Enables I-Care's emotional tracker and notifications



## Smart Notification Popups

Powered by NLP to identify potential depression or suicidal tendencies

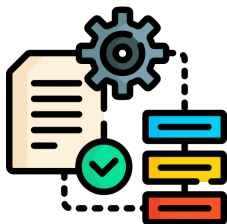
# Natural Language Processing Algorithm

## Data

" Today has been a very tiring day. The day has been very packed with non-stop activities with little rest. I am drained, super tired and about to knock out anytime now :( "

## Preprocessing

- Tokenization
- Stopwords
- Punctuation
- Stemming



## Feature extraction

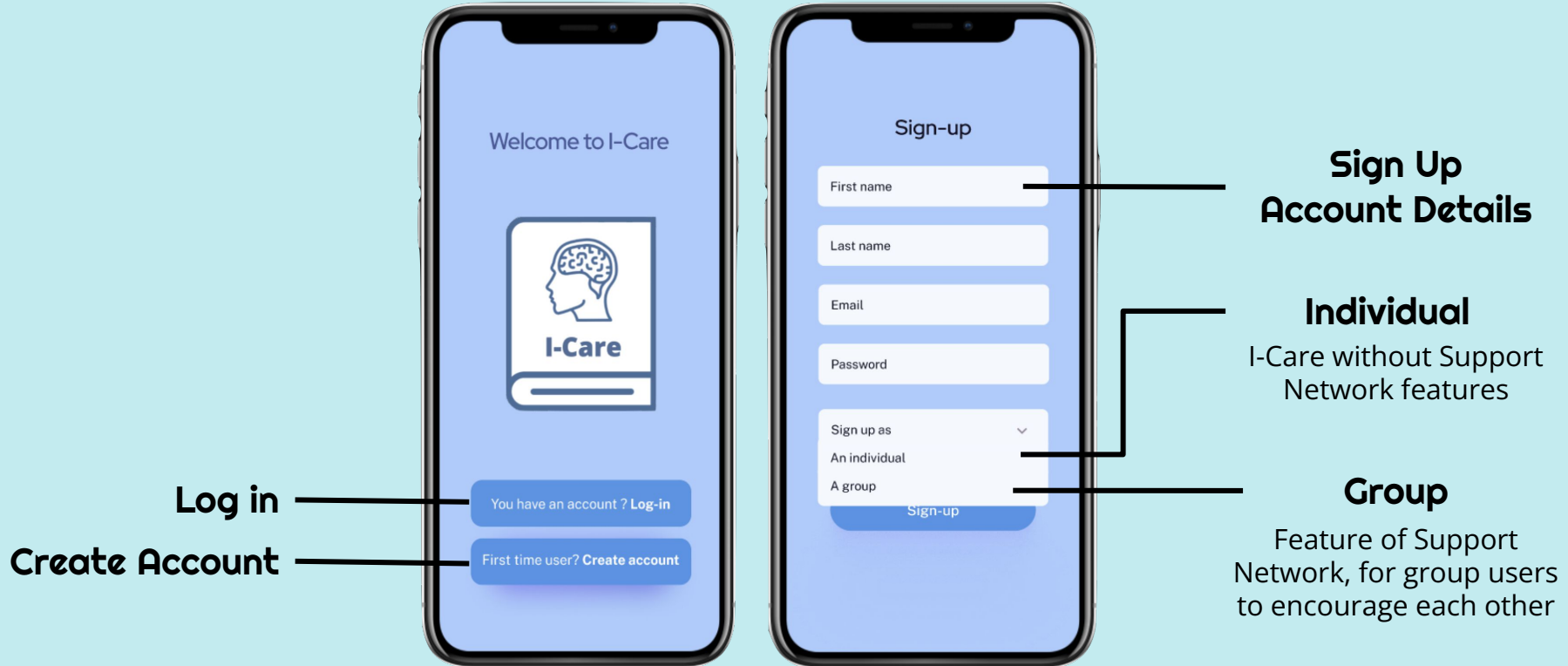
Word Frequency  
TF-IDF

## Classification

## Random forest



# I-Care: Sign up Page





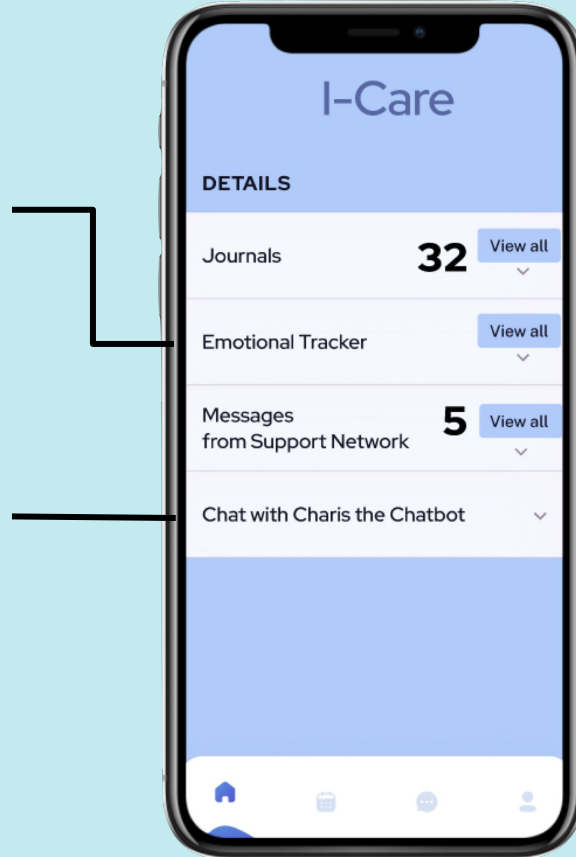
# I-Care: Home Page

## Emotional Tracker

Powered by NLP to classify the user's general mood of the day

## Multi-Functional Conversational Chatbot

Provides a safe space for people who are afraid to seek help



## Integrated Journal

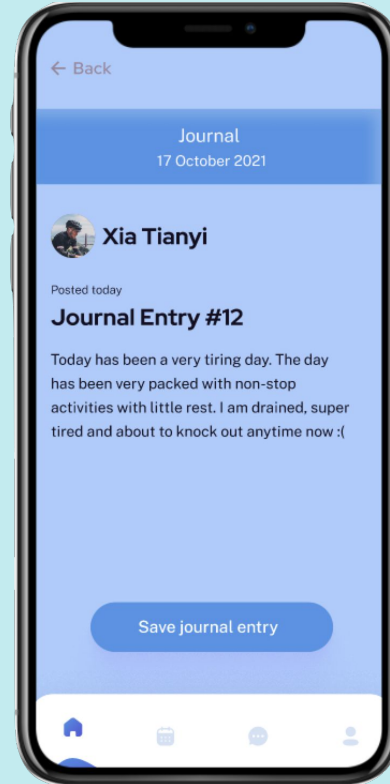
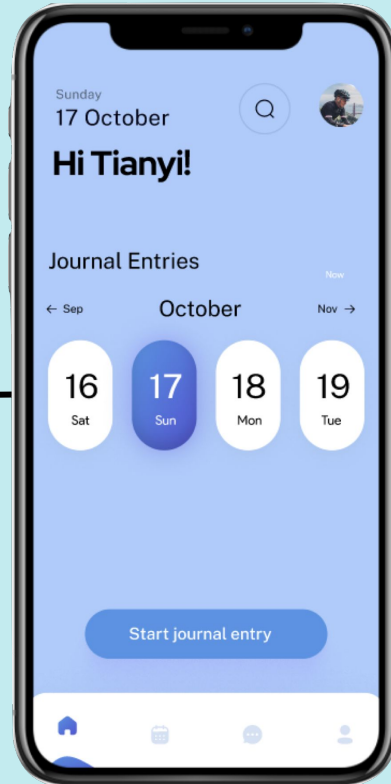
Safe space for users to express and log their emotions

## Messages

Feature of Support Network, for users to encourage each other

# I-Care: Journal Page

**Previous Journal  
Logs**



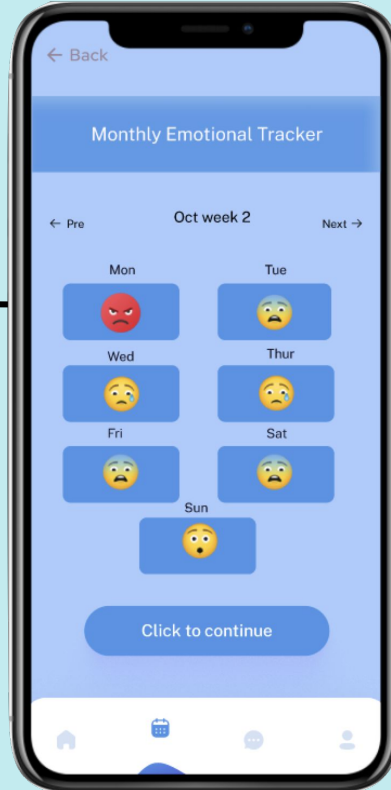
**Integrated Journal**

User enters daily journal entries and I-Care applies NLP to check for depression and user's emotions

# I-Care: Emotional Tracker (Negative Emotions)

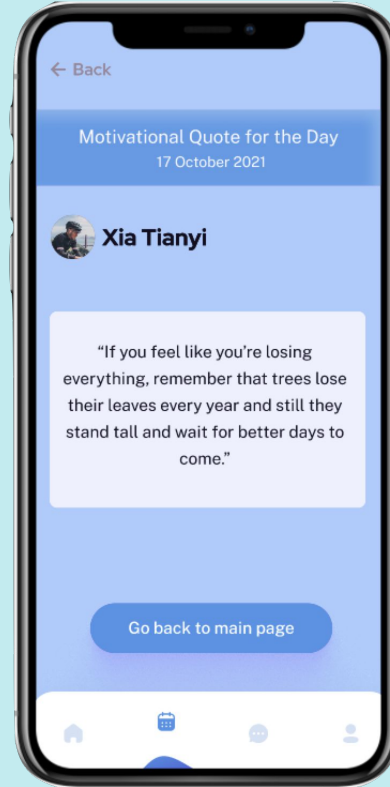
## Emotional Tracker

User's emotions over the past week displayed by emojis



## Smart Notification Popups

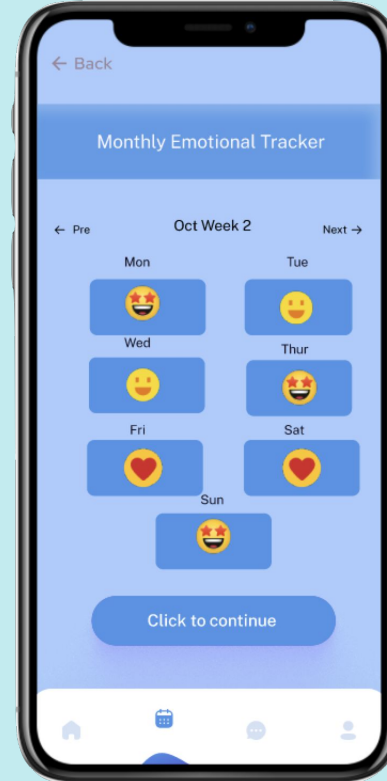
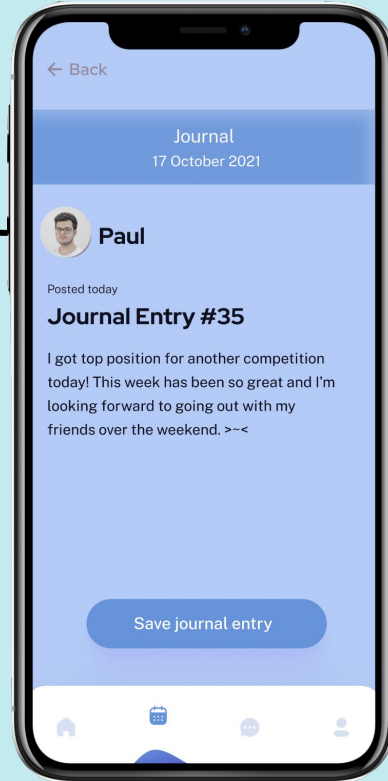
Motivational message when user experiencing negative emotions



# I-Care: Emotional Tracker (Positive Emotions)

## Integrated Journal

User enters daily journal entries and I-Care applies NLP to check for depression and user's emotions



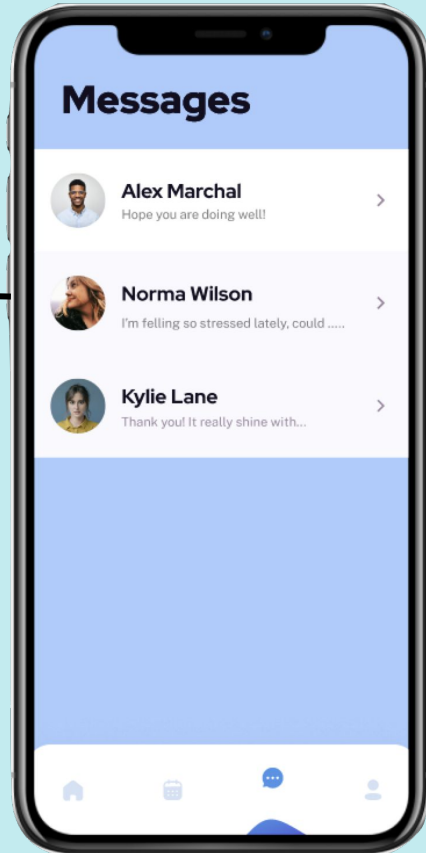
## Emotional Tracker

User's emotions over the past week displayed by emojis

# I-Care's Support Network

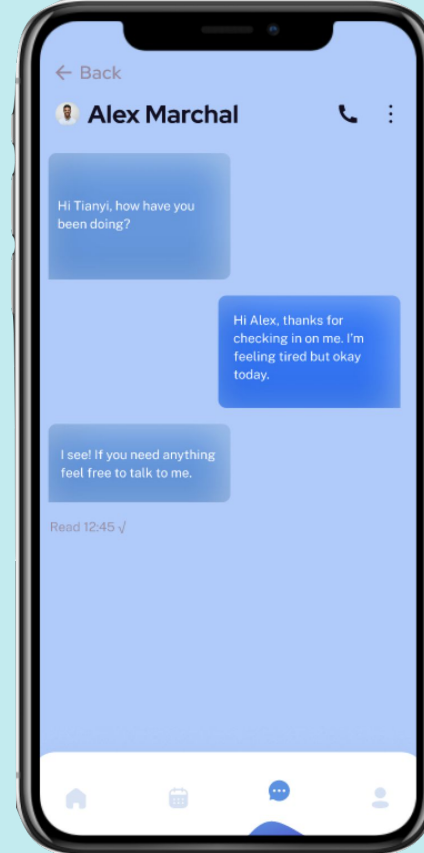
## Messages

Messages from other members in the user's group support network



## Messages

Feature of the Support Network that enables group users to check in and encourage each other



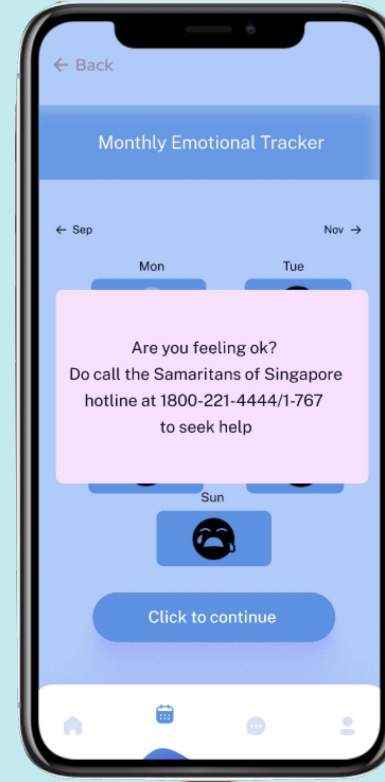
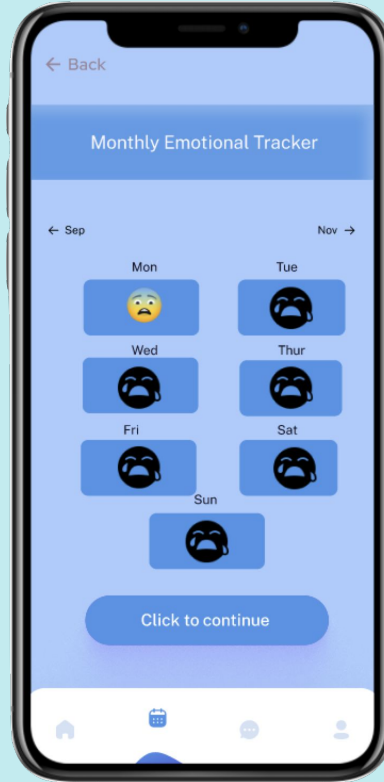
# Smart Notification Pop-Ups

## Concerning Journal Entry

NLP detects suicidal tendencies and negative emotions

## Emotional Tracker

NLP-powered tracker displays user's emotions



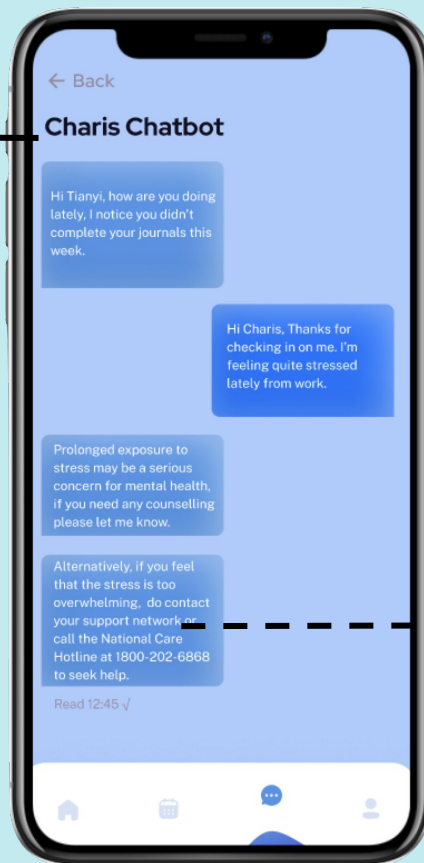
## Notifications

Smart Pop-Ups triggered when suicidal tendencies are identified

# Chatbot

## Activated based on concerning Journal entries

Ensures that timely  
assistance is  
provided to people  
who may be feeling  
mental health issues



## Provides possible avenues of help

Recommends  
appropriate care

# Impact of I-Care



Preliminary **quick diagnosis** of Mental Health issue



## Early invention

Prompts individuals when negative emotions are detected, and provides support for the user

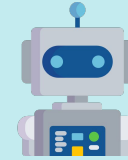


**Timely assistance** to individuals suffering from mental health issues

**Carer-Caree**  
(Parent - Child)



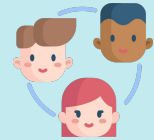
**Chatbot**



**Smart PopUps**



**Messaging: Peer support**



**Increased accessibility for mental health help**



## Journal

I-Care provides an alternative avenue for people to express themselves and seek mental help, improving awareness of their user's mental health and emotions



**Thank you!**

