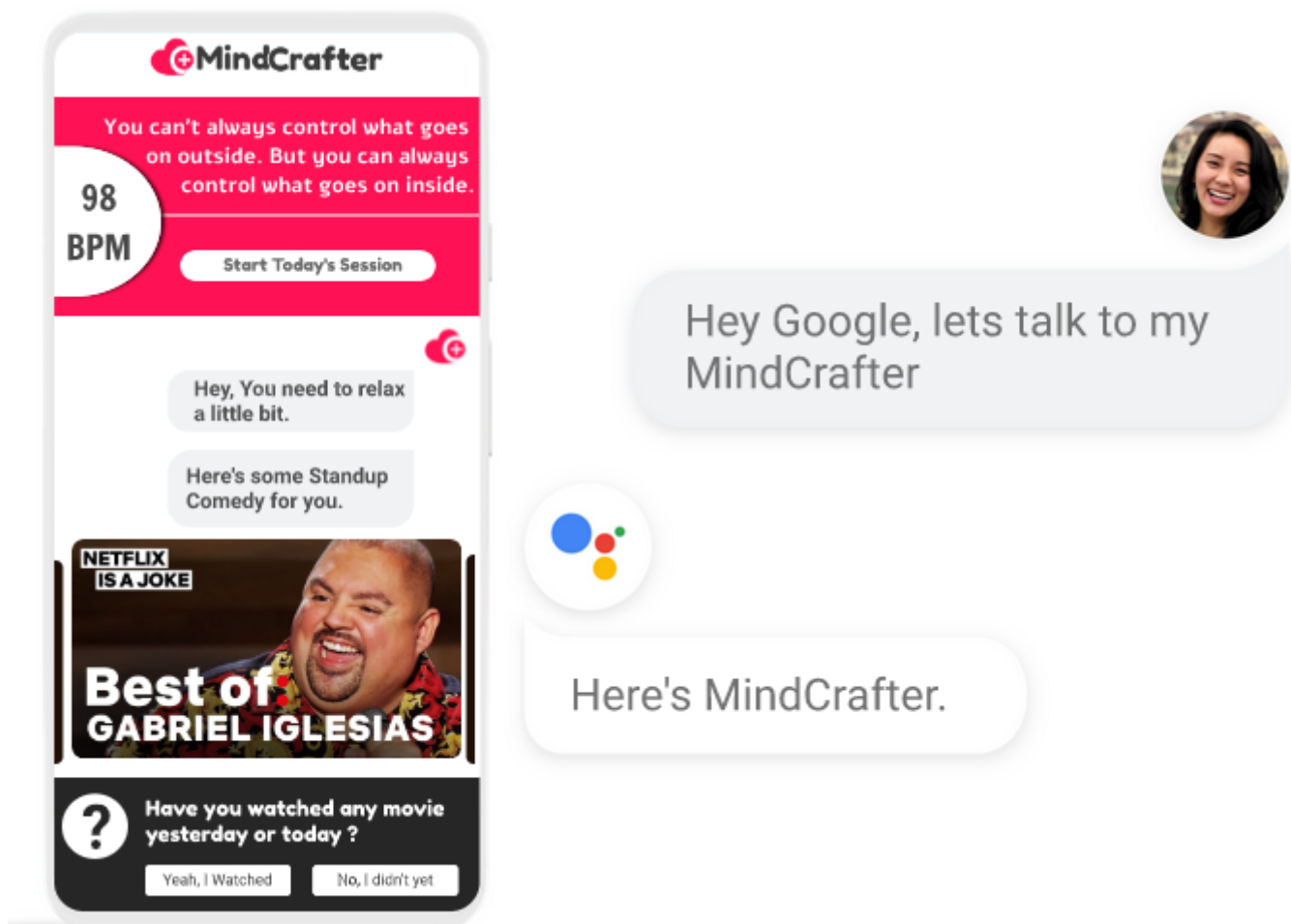




ML Based Mental Health Diagnosis & Consulting App

Idea in brief

MindCrafter is a mental health diagnosis application that uses data from android smartphones, smartwatches that automatically measure patterns of behavior. Real-time smart devices data measurement provides a complete picture of behavioral functioning. This helps MindCrafter to provide Dynamic AI tailored diagnosis and consulting to each person.



Plan to bring it to Life

Working Explanation

I am primarily focusing on the five most important mental issues. 2 out of 5 adults have these issues. I'll be using Smart devices with Android OS to collect behavioral data like sleep times & heart rate of the user.

Anxiety (Excessive Fear)

Physical Symtoms	Data Collection Methods
Pelpetations (Sudden Heart Rate Fluctuations)	Heart Rate Monitoring using SmartWatch or Facial Recognition
Sudden Fluctuations in Body Tempreature	Body Temperature Monitoring using SmartWatch or device's built-in temperature sensor
Involuntary Tremors in body	Symptom Analysis Questioning using Application Notifications
Voluntary Tremors	Voluntary Leg or Hand Shaking using Motion sensors
Issues with Stomach (Digestion)	Symptom Analysis Questioning using Application Notifications

Android Based treatments: Meditation, Entertainment, Therapy Session, etc.

Depression (Feeling Upset)

Physical Symtoms	Data Collection Methods
Loose of Interest in Social & Entertainment Activities	Relaxation Time Time Spend on Social & Entertainment Media
Excessive Guilt Feelings	Therapy Session Analysis using Therapy Questioning in Application
Sudden Low Physical work & Excersize	Meditation, Yoga & Physical Activity Tracker using Application & SmartWatch
Sleep Abnormalities (Early Wakeups & Disturbed Sleep Patterns)	Sleep Tracking using SmartWatch & Device usage

Physical Symtoms	Data Collection Methods
Poor Concentration	Symptom Analysis Questioning using Application Notifications

Android Based treatments: Therapy Session, ANT clearing Therapy, etc.

Bipolar Disorder (Severe Mental Disorder)

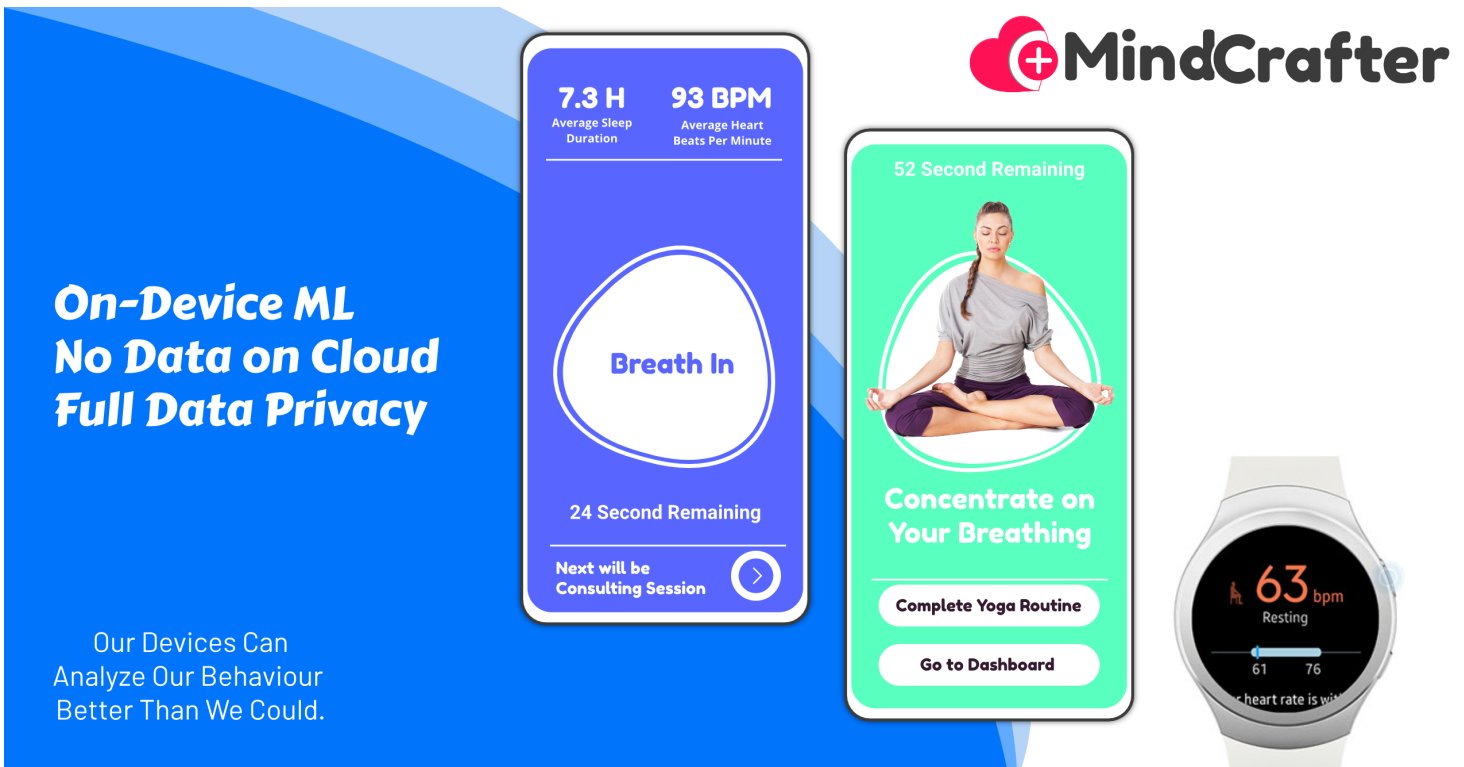
This type of disorder can be analyzed with mania & Depression together. Because of this mental issue. The user always switch between Mania Phase & Depression Phase for 7 to 15 days for each Phase.

Mania (Depression is discussed above)

Physical Symtoms	Data Collection Methods
Sudden Excessive Interest in Social & Entertainment Activities	Activity Time Time Spend on Social & Entertainment Media
Excessive Happiness Feelings	Therapy Session Analysis using Therapy Questioning in Application
Sudden increase in Energy Levels, Physical work & Excercise	Meditation, Yoga & Physical Activity Tracker using Application & SmartWatch
Very fewer Sleep Patterns with high energy levels	Sleep Tracking using SmartWatch & Device usage
Grandeur Feeling	Symptom Analysis Questioning using Application Notifications

Android Based treatments: Long Therapy Sessions, Specialised Consultancy, etc.

187 More Issues with Symptoms and Data Collection Method can be analyzed for ML Model training.



Product & Features

Each user generates more than 100+ behavioral data points each day. Which can help MindCrafter to analyze the situation of the user. Today users are digitizing more personal data than ever before.

Product	Features
Android Application	Consulting ChatBot
	Meditation Guide (Full)
	Daily Yoga Scheduling
	Emotional State Monitoring
Google Assistant (Service)	Consulting ChatBot
	Guided Meditation Session(Quick)
	Daily Yoga Scheduling

Project Technology Profile

Frameworks	Purpose
Flutter	Android Application Development

Frameworks	Purpose
Firebase	Performance & Monitoring
Tensorflow Lite	On Device tailored ML Model
Dialogflow	Consulting Bot
Google API's	Youtube Videos & Music

Google's help

- I've got a very limited understanding of feature extraction from behavioral data for ML model training that is different for each user. Google could help me with a better understanding of the Android OS & Data Collection methods that I can use.
- Google could help with Google API's integration like Youtube API & Music API.
- This application could impact thousands of people but with Google, it can impact millions of people who don't even know that they need help.

Plan on using On-Device ML technology

On-device APIs can process your data quickly and work even when there's no network connection. Cloud-based APIs, on the other hand, leverage the power of Google Cloud Platform's machine learning technology to give you an even higher level of accuracy.

On Device ML Kit API's	Use Cases (examples)
Text recognition	Language Preference Detection
Face detection	Facial Emotion & Heart rate Tracking
Object detection & tracking	AR Based Meditation Guide
Smart Reply	ChatBot Reply Helper
AutoML model inference	On-device ML inference
Custom model inference	On-device ML inference

Project Timeline

Start Date	End date	Milestones
2 November	30 November	Study about digital diagnosis

Start Date	End date	Milestones
1 December	12 December	Planning about ML integration
13 December	24 December	Analysis Modelling
28 December	18 January	Development (Templates & Operations)
20 January	30 January	Tensorflow lite Integration
1 February	20 February	Machine Learning Training & Debugging
23 February	3 March	Functional Testing
4 March	20 March	User Interface Designing
21 March	31 March	User Experience Testing
April Start	April End	Deployment & Testing

A little about me

I have developed some applications in Flutter(Dart) and java both. I am currently learning about Artificial Intelligence and machine learning. I have some people in my life who have mental issues and problems but they never accepted or recognized what their problem was. But now I think with the help of machine learning I can develop an application that is able to recognize & diagnose normal mental illnesses like stress, anxiety & depression.

I am pursuing my bachelor's degree program in computer engineering. I have done many internships in development, graphic designing, and marketing. I have work experience of 2 years at an AdTech Startup & I've published my app on google play store.

Previous Application : [Stocks Expert App](#)

Why Mental Problems ?

National Alliance on Mental Illness Report - Sept. 2019

1 in 5 U.S. adults experience mental illness each year
 1 in 25 U.S. adults experience serious mental illness each year
 1 in 6 U.S. youth aged 6-17 experience a mental health disorder each year
 Suicide is the 2nd leading cause of death among people aged 10-34

There is only one psychiatrist per 100 000 people

Worried 🙄 ?

Smart Devices can help us here.

- More Than 100 Behavioural Datapoints per user/day
- Diagnosis Test Results
- Consulting
- Tailored Machine Learning Model

Statistics References

<https://www.nami.org/learn-more/mental-health-by-the-numbers>

https://www.who.int/whr/2001/media_centre/press_release/en/