

UTILIZING COLLABORATIVE FILTERING TO RECOMMEND OPPORTUNITIES FOR POSITIVE AFFECT IN DAILY LIFE

**PANOTE SIRIARAYA¹, KENTA SUZUKI²
SHINSUKE NAKAJIMA²**

¹ KYOTO INSTITUTE OF TECHNOLOGY, JAPAN

² KYOTO SANGYO UNIVERSITY, JAPAN

DIGITAL HEALTH INTERVENTIONS

- VR/AR and Gamification in Mental Healthcare
 - Gamification of Mental Health Interventions
 - Using Virtual Reality to support Dementia Care
 - Tangible Interaction for Dementia and Positive Psychology
- Current Challenges
 - Content not personally relevant enough to be meaningful
 - Interventions not flexible for the specific situation of users

**GAME + INCLUSIVE
TECHNOLOGY HEALTHCARE**

SUPPORTIVE APPLICATIONS FOR MENTAL HEALTH

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INTELLIGENT SYSTEMS + GAME TECHNOLOGY + INCLUSIVE HEALTHCARE
SUPPORTIVE APPLICATIONS FOR MENTAL HEALTH

MENTAL HEALTHCARE GAMIFICATION

READY SET GOAL



The ReadySetGoal mobile application was created to support the activity of **goal setting** to be used in cognitive behavioural therapy

Game Elements



Risk Taking



Progression

REMINISCENCE THERAPY FOR DEMENTIA AT CAREHOMES

Purpose: Reduce Problematic behaviours, Wandering

Reminiscence Therapy: People with talk and reflect back on their past experiences using artefacts such as photos, items and videos



Gesture-based interaction



Tangible Interaction



Projected Augmented Reality

RESEARCH AIMS

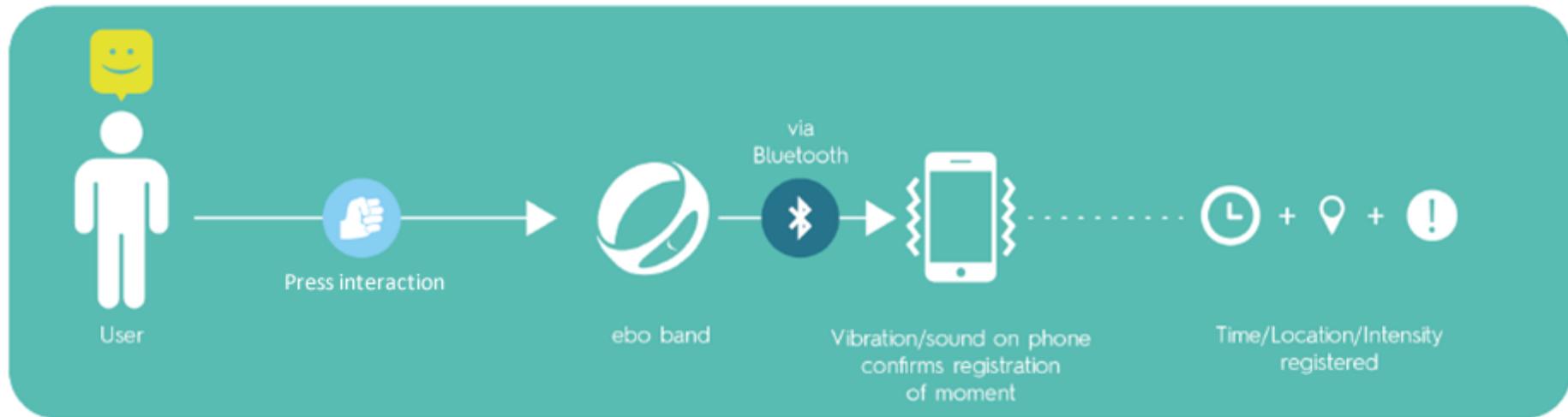
- Develop intelligent algorithms that could be integrated into existing therapies to provide content that are relevant to the personal context of each user
- Investigate how stakeholder acceptance would be effected when recommender systems are integrated with different aspects of the therapy
- Provide empirical evidence regarding the effectiveness of such systems through user experiments

THREE GOOD THINGS APP (EBO)

Purpose: Increase Positive affect, Resilience, Reduce chance for depression

Three-good-things activity: keep a record of three things which went well for them each day which they were happy about, reflect upon those activities to experience more appreciation

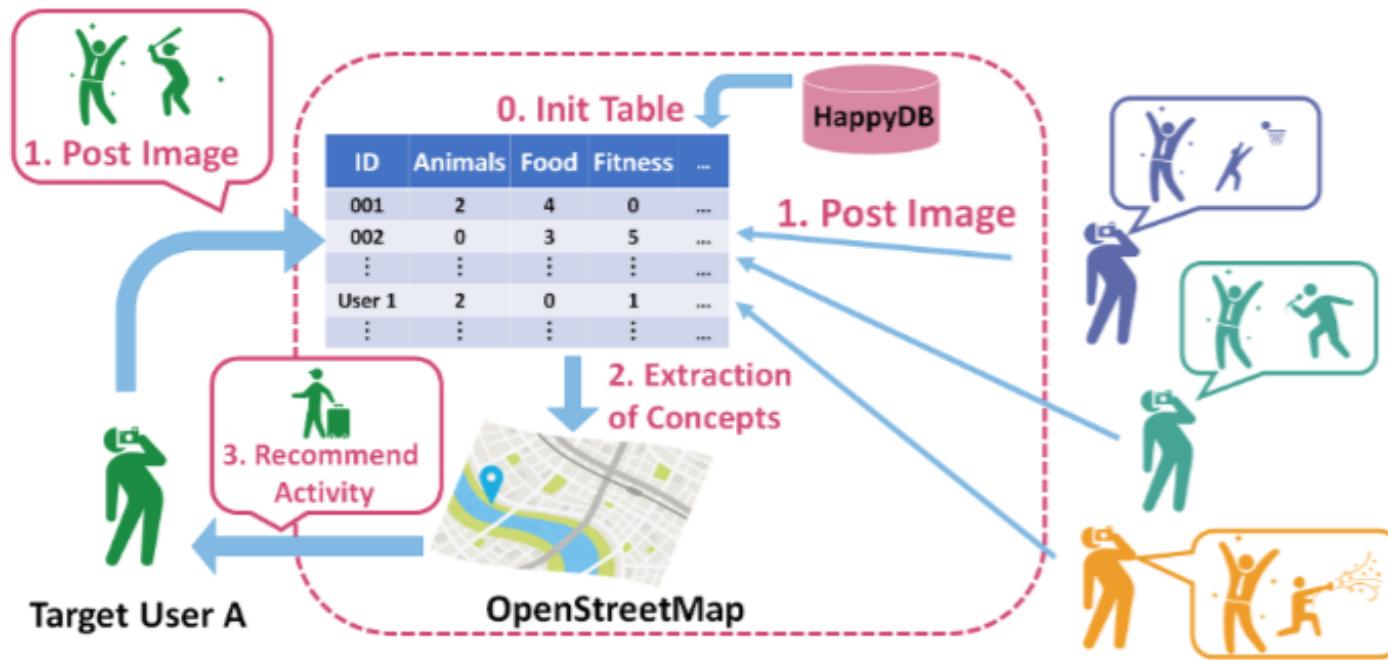
Target: Stressful Occupations (Police, Care-workers)



USE APP TO SUPPORT PEOPLE WITH LOW SELF-ESTEEM AND DEPRESSION

Problem with current application : Hard for people in depression and with low self esteem to find opportunities for enjoyment by themselves

Target : Incorporate An intelligent System to Recommend Opportunities for Positive Affect in daily life



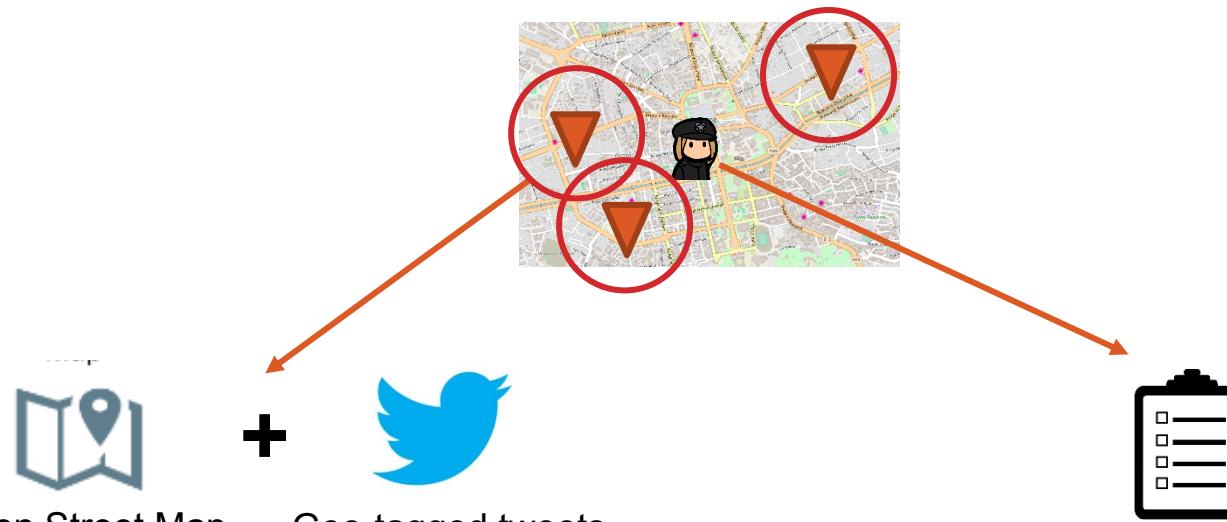
SYSTEM DESIGN

- During the day, users take a photo of satisfying life moments
- After the end of each day, users write a textual description of those moments to reflect back on them
- When users start to struggle to find happy moments, the recommendation system would suggest potential opportunities
- Playful or social mechanisms would be employed to encourage users to look for these opportunities

RECOMMEND OPPORTUNITIES

- Exploring the use of collaborative filtering
- User-Item matrix formed from “User” - “Positive Affect Keywords”
- Keywords extracted from textual descriptions of recorded instances in diary and used to fill the matrix
- Data from the HappyDB was used to initialize the matrix to help avoid cold-start problem
- Calculate a score for each potential keyword for each user

FIND NEARBY OPPORTUNITES

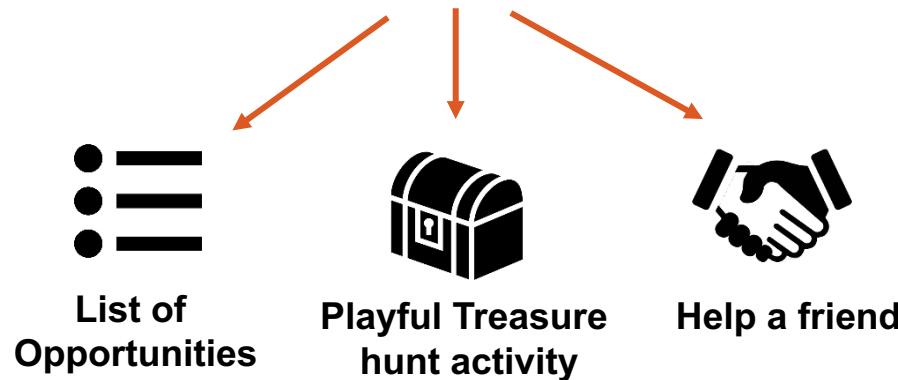


Averaged Word2Vec vector

X

Averaged Word2Vec vector

Pearson Correlation



QUESTIONS?

SOCIAL ANXIETY TREATMENT GAME

- Purpose:** Treat Social Anxiety for game addicts
- Exposure Training:** Let patients experience and get used to social situations

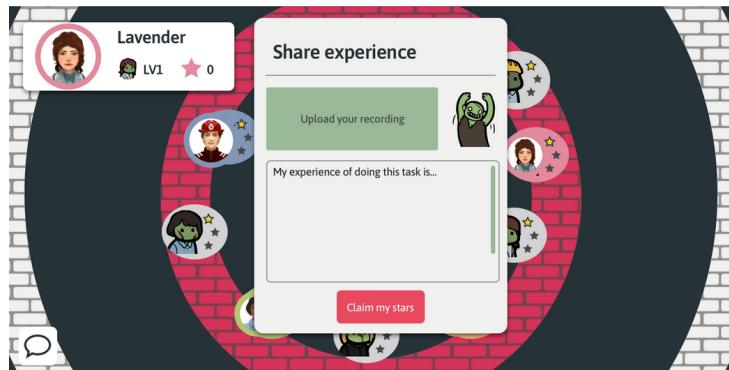
Please select your player and fill in the basic information



< 1 2 3 4 5 >

Nickname
Gender
Age
Email
Contact number

Confirm



CONTEXTUALLY AWARE SOCIAL ANXIETY TREATMENT GAME

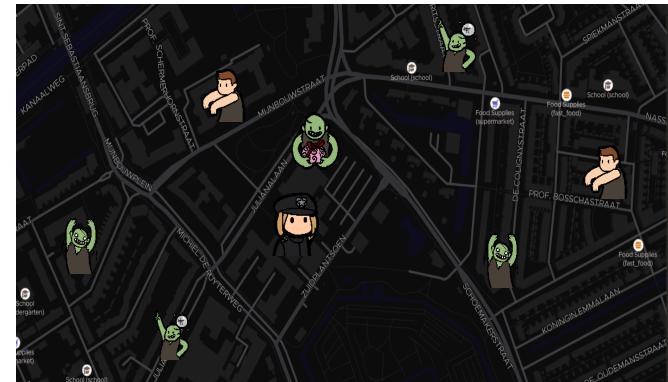
Recommend tasks which match social anxiety characteristics and contexts of users using open data



OpenStreet Map Google Street View



→ Rank tasks based on the social anxiety profile and physical location of users



REMINISCENCE THERAPY FOR DEMENTIA

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Develop a context aware filtering algorithm to automatically extract information (text and pictures etc.) from social media images and use them in Reminiscence therapy

