



# KEEP CALM

A Smartwatch  
for People with Autism to Regularize Emotion

# FACTS AND FIGURES

**1 %**

About 1 percent of the world population has autism spectrum disorder (ASD)

About 1 in every 100 children in China has ASD

**14 Million**

14 million people could have the condition in China

**1/3**

Nearly a third of people with autism are non-verbal



# EXECUTIVE DYSFUNCTION

Unproportioned attention to irrelevant aspects of a given task

Difficulty to keep an instruction in mind while inhibiting a problematic response

Strong difficulties in the change of environment of certain task



# **SUPPORTING STRATEGIES**

INCREASE USERS' SELF-DETERMINATION FOR PEOPLE WITH ASD





## ASSISTIVE TECHNOLOGIES

Assistive devices enable caregivers to create, edit and perform strategies to regularize the emotion of ASD

## CAREGIVERS' INTERVENTIONS

Caregivers and teachers are the people who know characteristics of ASD best



# WHY SMARTWATCH ?

## WIDE SENSING SET

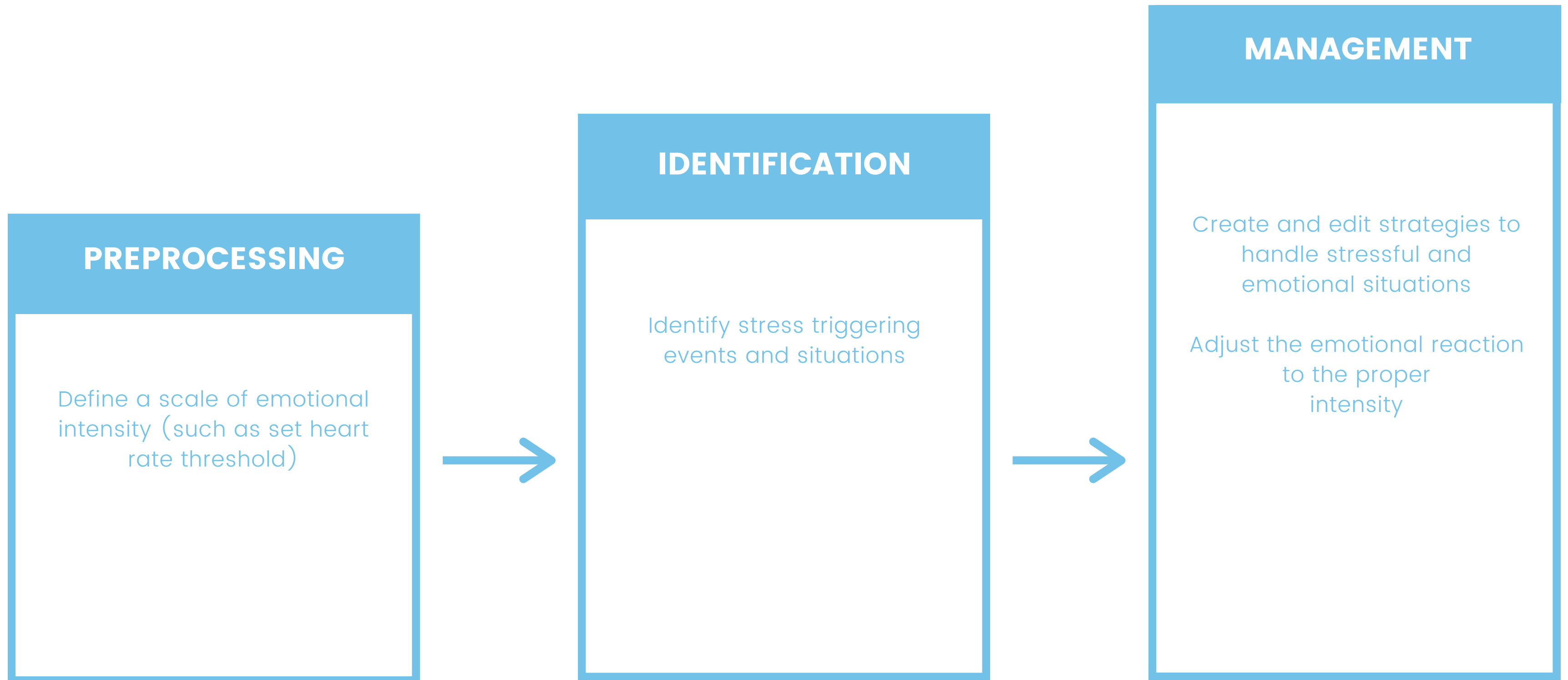
Accelerometer, heart rate monitor  
GPS, light sensor, Wi-Fi, etc.



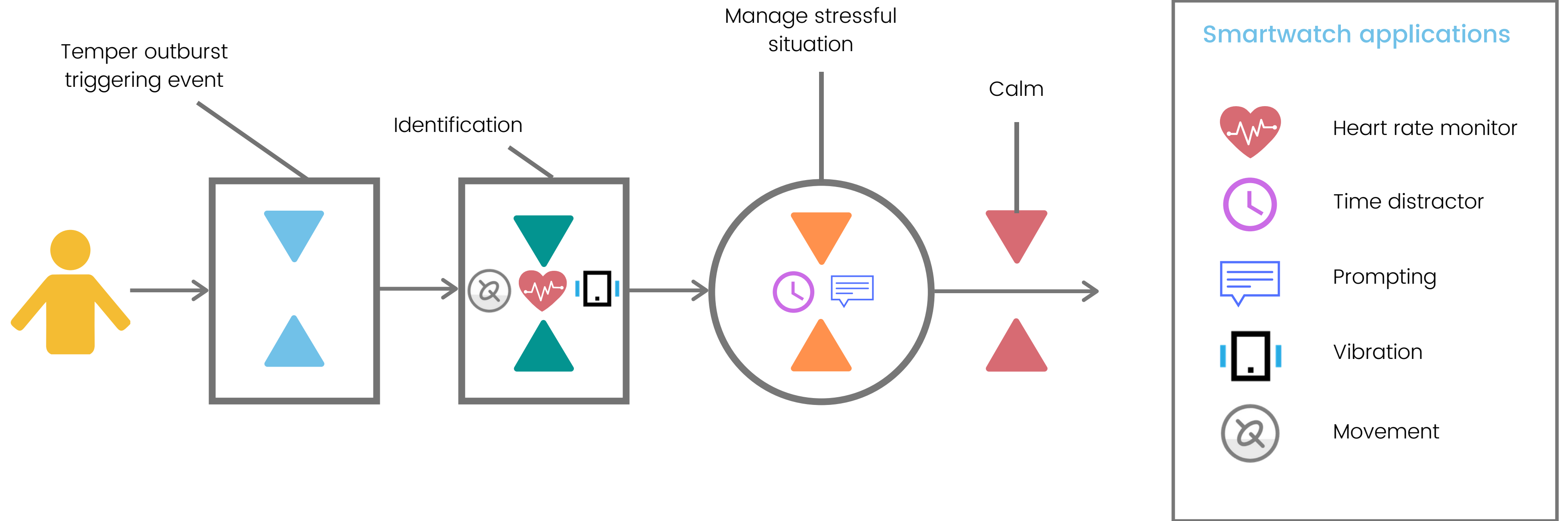
## VARIED INTERACTION POSSIBILITIES

Tactile screen, vibration feedback or voice recognition

# MODULES IN THE SMARTWATCH







# APPLICATIONS IN THE SMARTWATCH

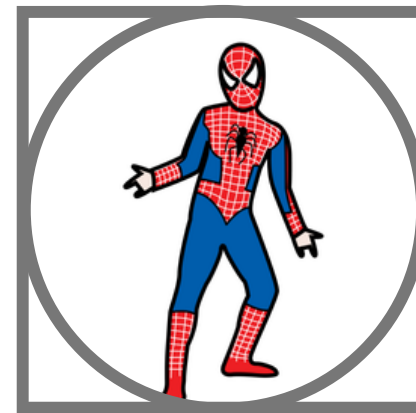


# ASSISTANCE ACTIVITIES



## PICTOGRAM

Caregivers can upload pictograms children are interested in



## ANIMATION

If children are more likely to focus on animation, caregivers can upload gifs to smartwatch



## TEXT AND AUDIO

Strategies can also include text and audios as instructions or encouragement at the end. The content can be personalized and audios can be the voice of caregivers



# SMARTPHONE

1

## AUTHORING

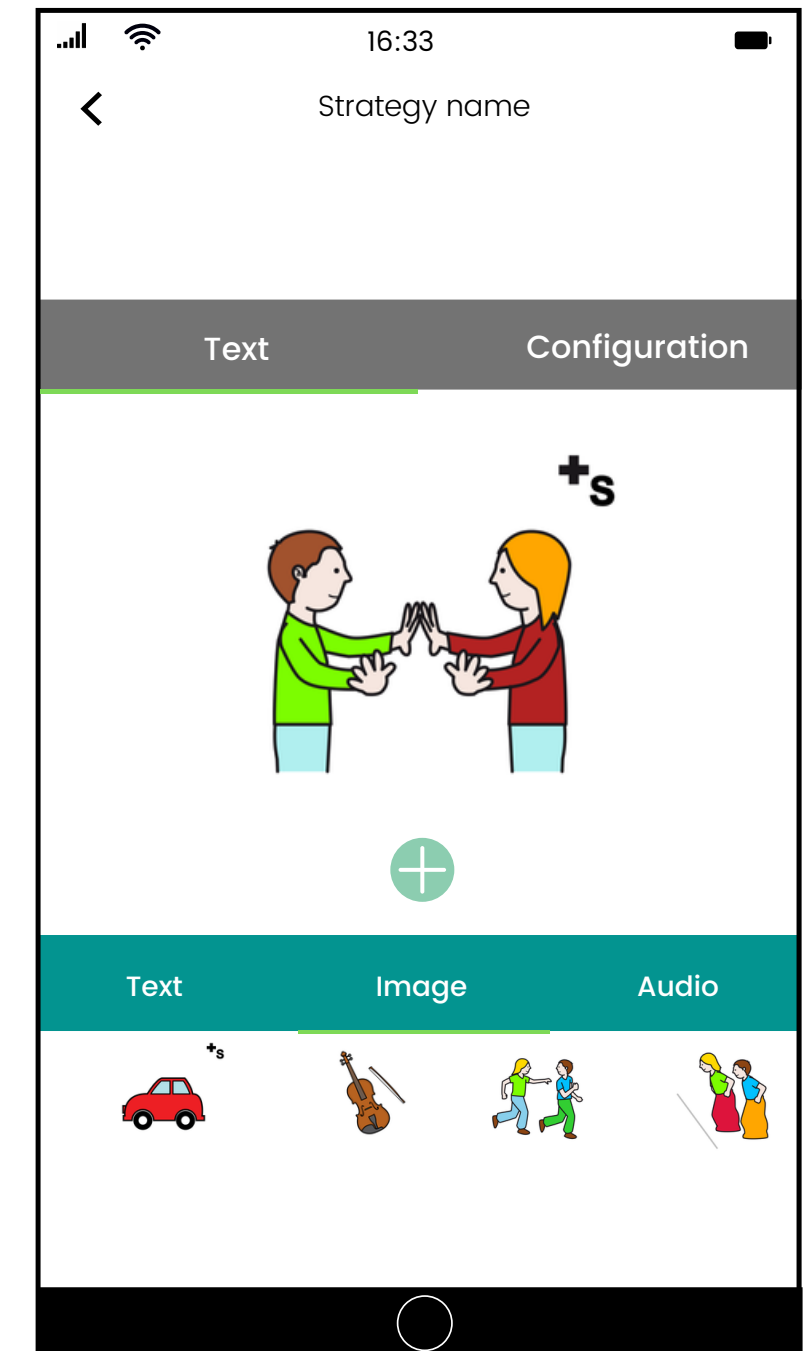
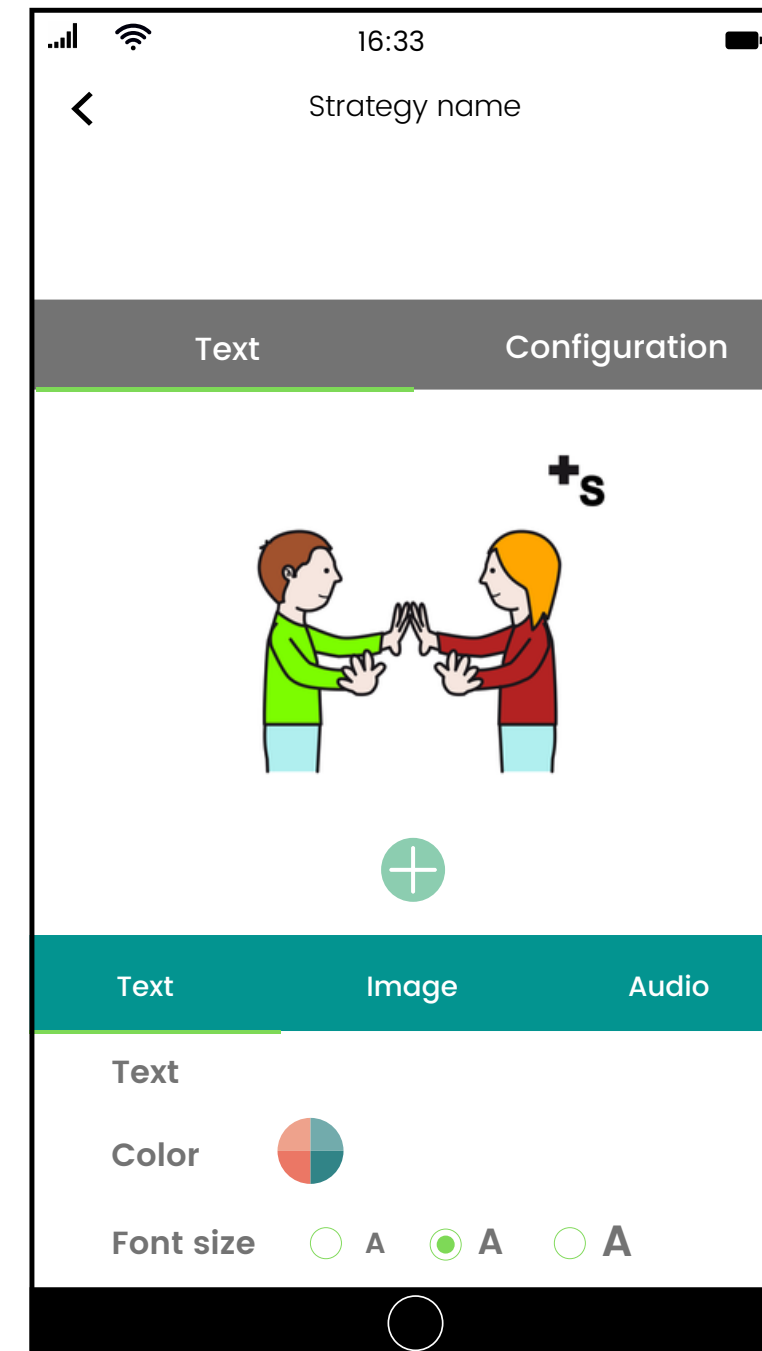
Smartphone is served as authoring tool to achieve 2 goals: create and edit activities for the smartwatch

2

## USER-FRIENDLY

No too much functionalities

Users can use the materials in the database or they can also import resources



# PLEASING COLOR

People with autism often detect colors with higher intensity  
They are more sensitive to their surrounding so the world appears extraordinarily sharp to them



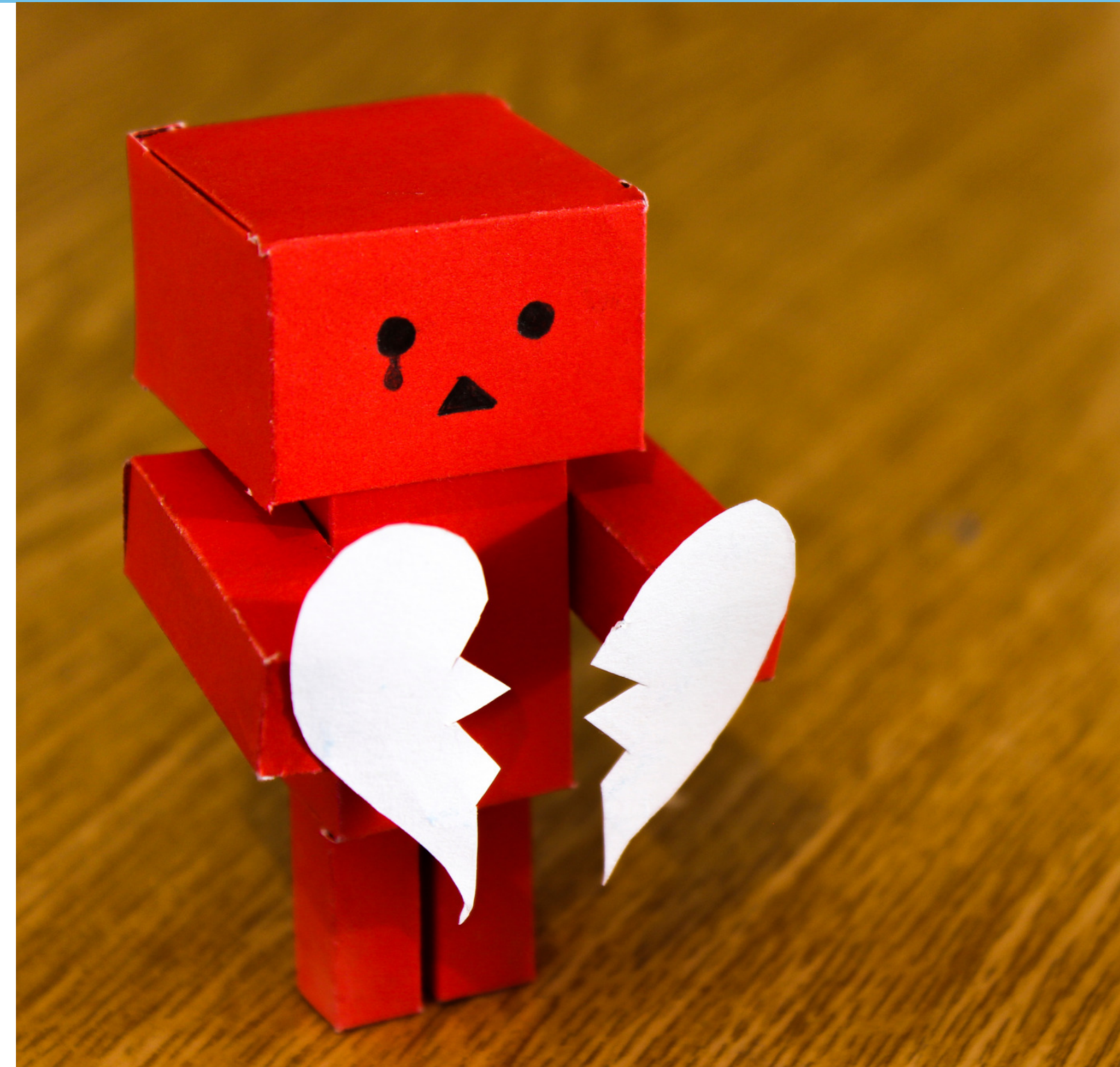


# USER CASE

## Cathy, how to make you happy?

Cathy is a girl with autism spectrum. She is 8 years old, and is afraid of animals. Cathy suffers temper outburst when animals are in sight (like a dog). She might leave the class and go to another classroom and does not get calm for a long time.

Cathy's parents and her teachers know Cathy enjoy watching Peppa Pig and singing songs of it when she feels happy.





# ILLUSTRATION

## Save Cathy from the stress

So Cathy's heart beats fast and she jumps repeatedly. The application in the smartwatch (heart rate monitor and accelerometer) detects the stressful situation and triggers the strategy programmed by her mother. The watch vibrates and plays audio (her mother's sweet voice, or her favorite song), catching Cathy's attention. A gif of Peppa Pig is displayed in the screen. Cathy starts to sing the opening song of this show and she notices the images change if she touches the screen. After browsing all images, she breathes in and out following the pictograms. At the end of breathing exercise, a message with a picture is shown: "Well done, Cathy, you are the best!"

**Cathy feels happy.**



## **FINAL WORD**

**Accept. Understand. Love.**