Weather-Alarm Clock

Multi-modal Project

Group5

Jingxiang Gou / Jin Yao / Ziyao Zhao / Dan Wu

Background
&
Inspiration

Get up 2 hours later…
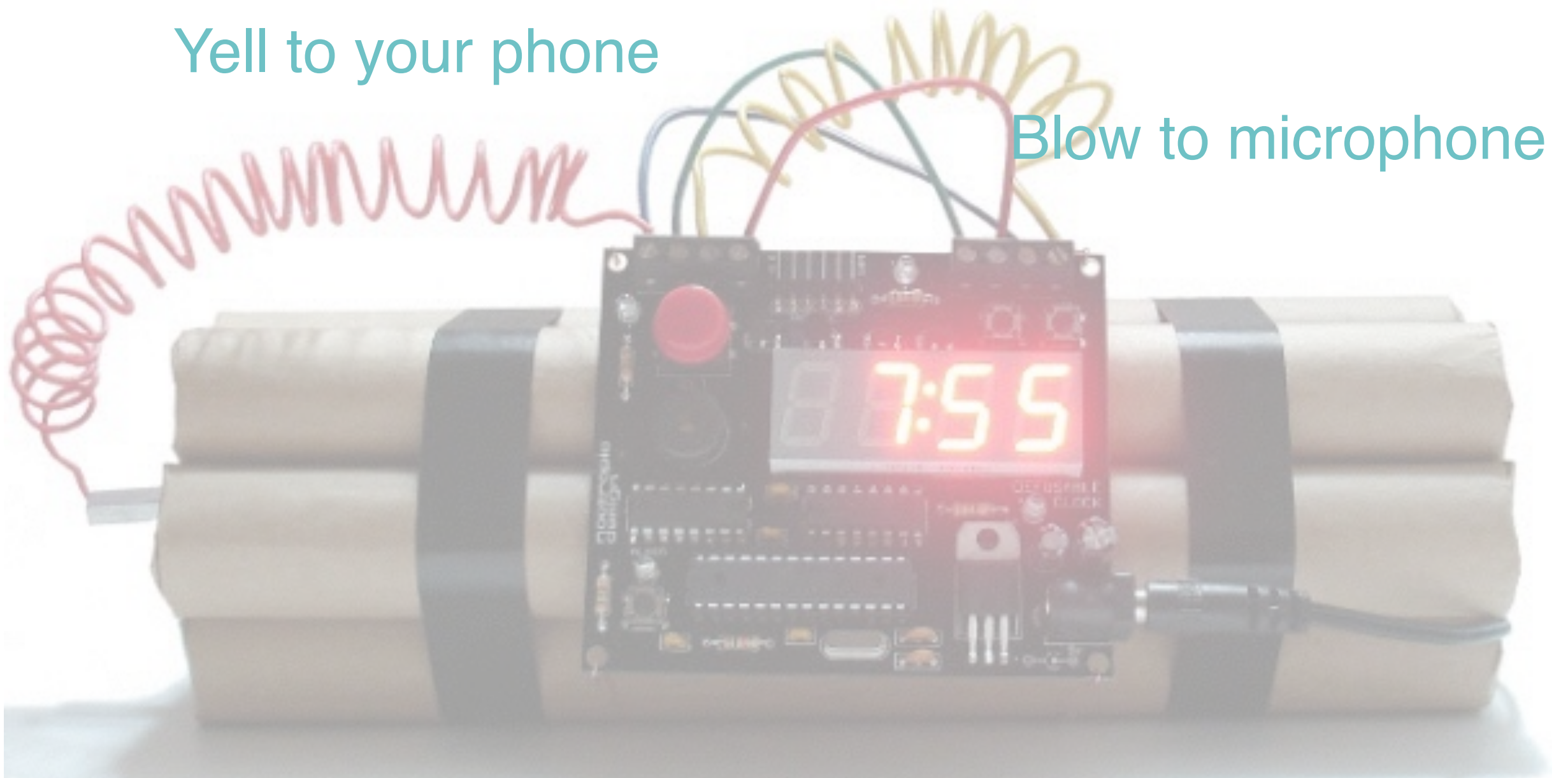
Hard tasks

Gestures

Swap your screen

Answer math question

Shake your phone 50 times

Yell to your phone
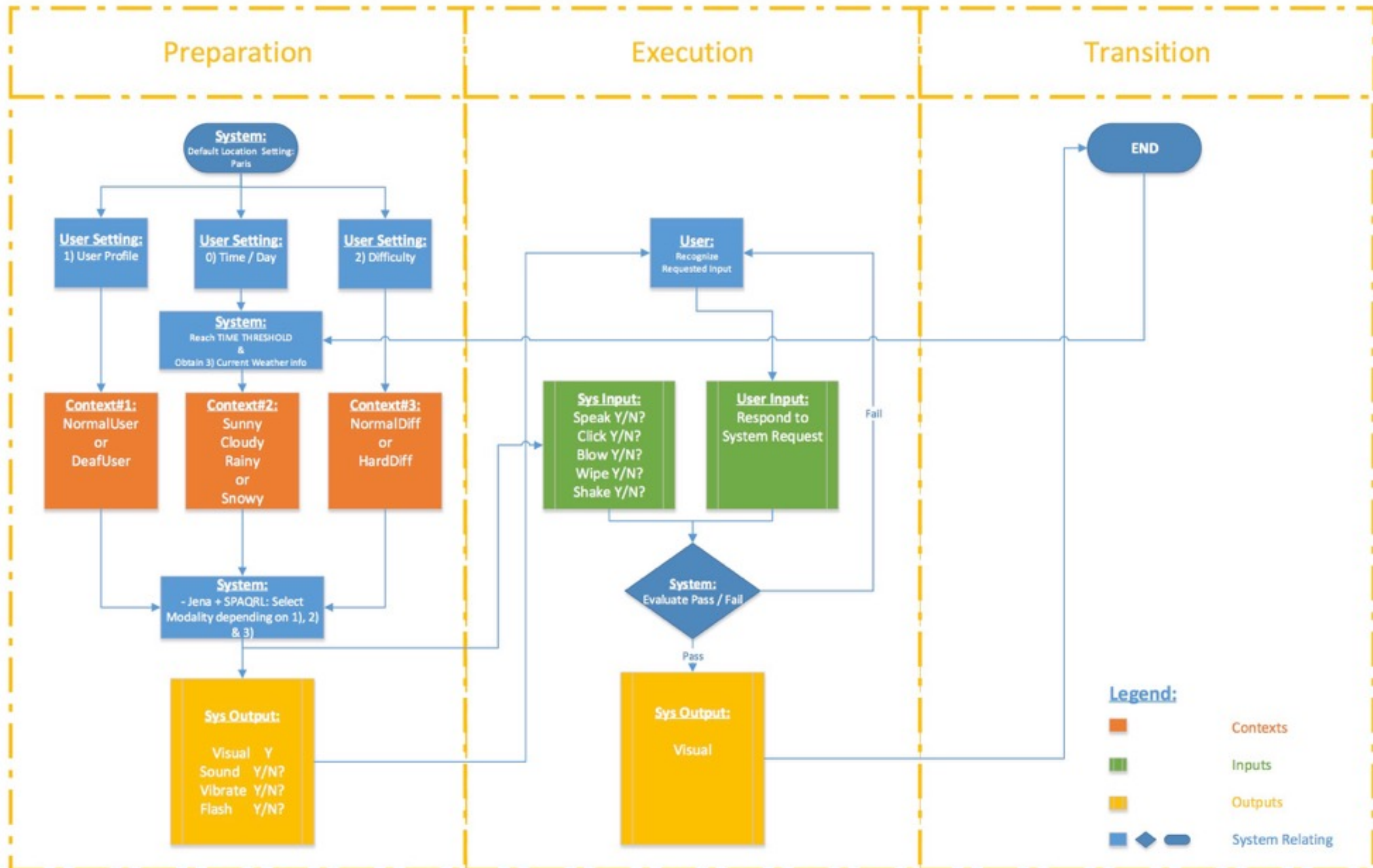
Blow to microphone

Design Concept
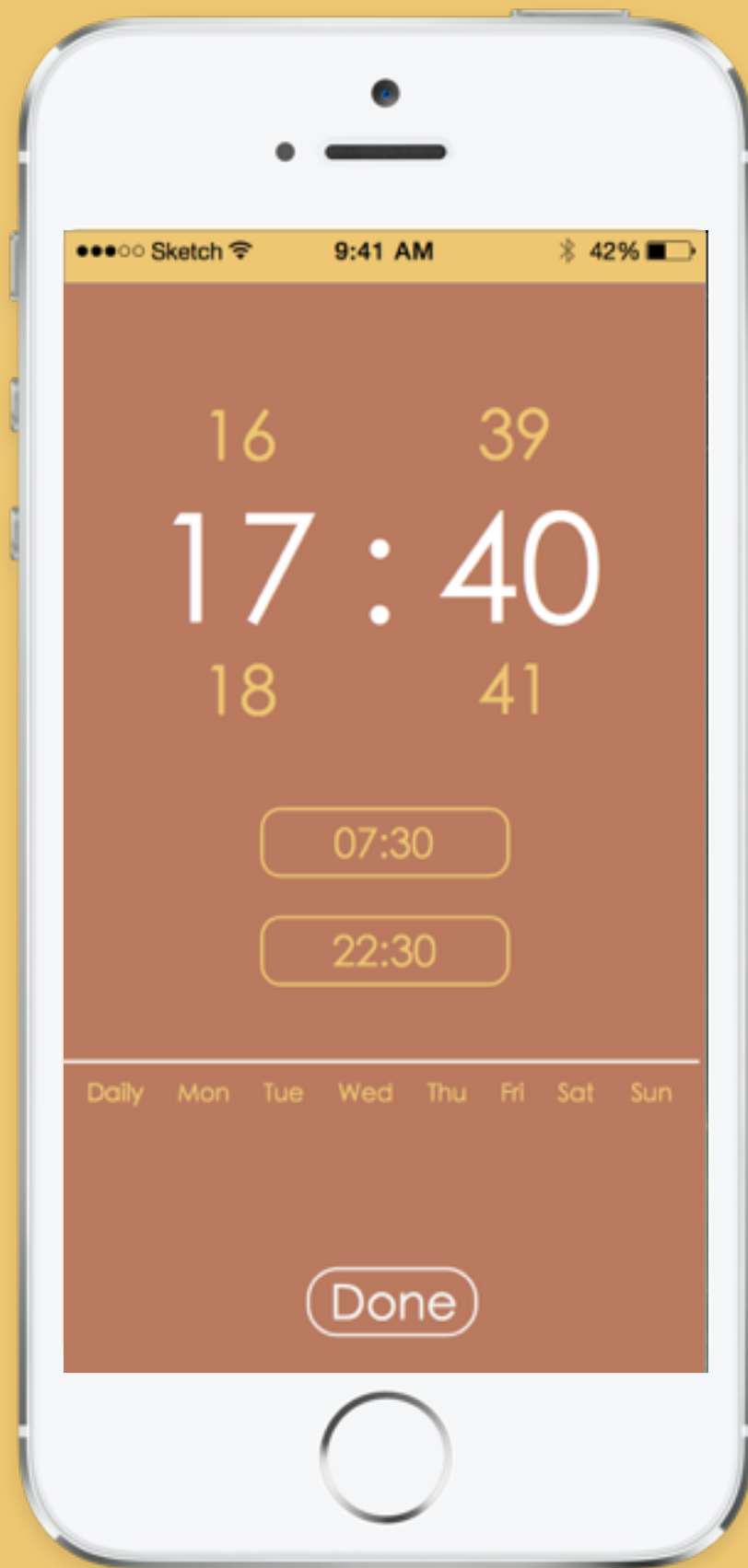# &
Functions

Hard tasks & Weather Info

Input & Output

Modality	Input Modality	Output Modality
Voice	√	-
Gesture	√	-
Shake	√	-
Visual	-	√
Sound	-	√
Vibrate	-	√
Flash	-	√

Task Flow

23 / 02 Sunday
17:40
18°C

07:30

22:30

17:40

Add an alarm clock

07: 30

Good
Morning~

●●●○○ Sketch 🛜   9:41 AM   ⚹ 42% 🔋

15℃
24℃

18°

17h   23h   06h

Got it

Snowy !

Scratch

15:30

(+5min)

Blow to remove all the clouds

Cloudy
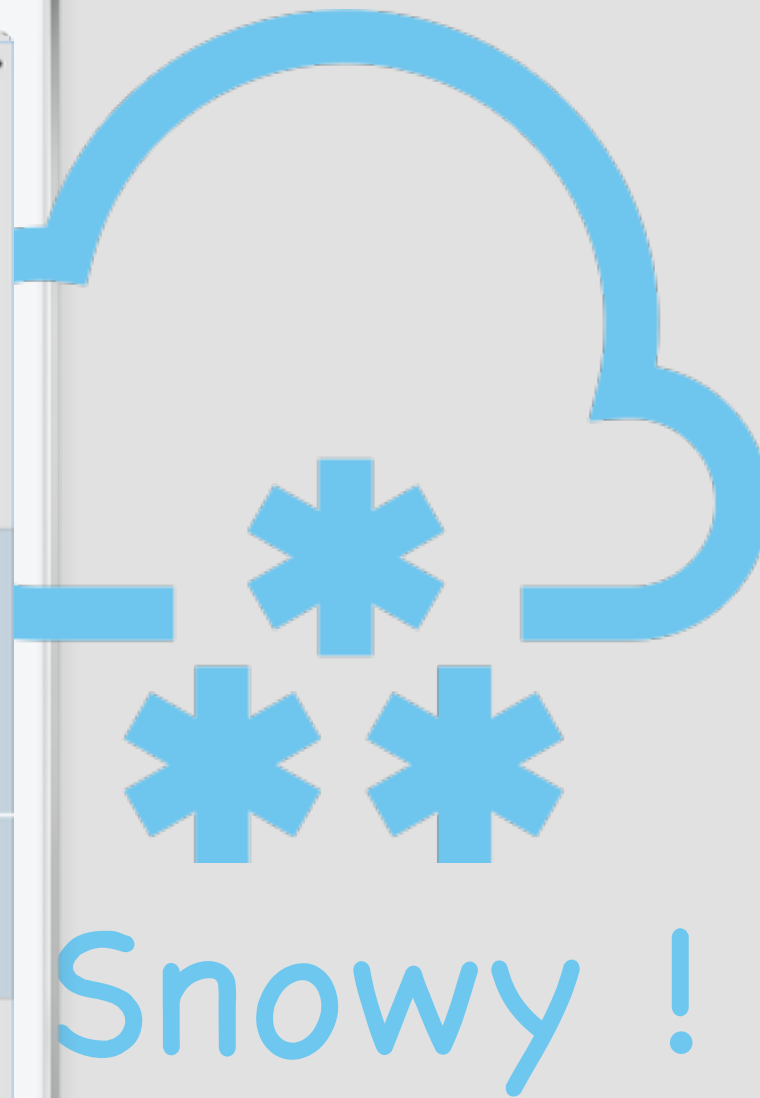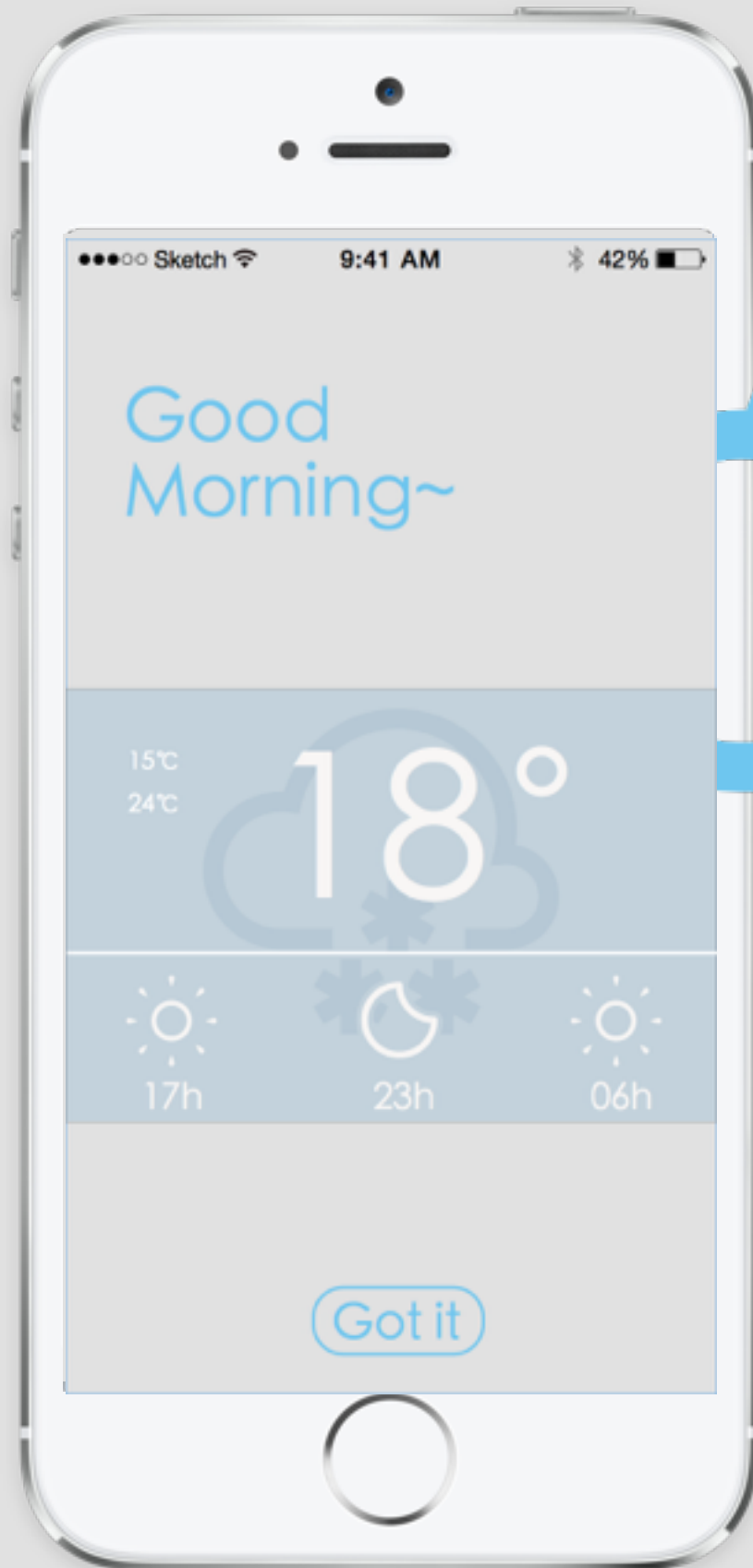
If its Cloudy !

Scratch

Implementation

Resource

API: Android 5.0.1 (API 21)
          Jena RDF+ARQ
          OpenWeather API

SW: Android Studio 1.0

HW: HTC One M7

RDF-Context

Context Element	User Profile		Difficulty		Weather			
	NormalUser	DeafUser	Normal	Hard	Sunny	Snowy	Cloudy	Rainy
Speak	√	-	-	-	√	-	-	-
Blow	√	-	-	-	-	-	√	-
Wipe	√	√	-	-	-	√	-	-
Click	-	√	-	-	√	-	-	-
Shake	√	√	-	-	-	-	-	√
Visual	√	√	√	-	√	√	√	√
Sound	√	√	√	-	-	-	-	-
Vibrate	√	√	√	-	-	-	-	-
Flash	√	√	√	-	-	-	-	-

4 x 2 x 2

Weather   Difficulty   UserProfile

4 + 2 + 2

Weather   Difficulty   UserProfile

RDF.xml

```xml
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
    xmlns:ex="http://imi.org/">

    <!-- Input Part -->

    <rdf:Description rdf:about="InputModality">
        <rdf:type rdf:resource="Modality"/>
    </rdf:Description>


    <rdf:Description rdf:about="Speak">
        <rdf:type rdf:resource="InputModality"/>
        <ex:hasUserProfile rdf:resource="NormalUser"/>
        <ex:hasDifficulty rdf:resource="NormalDiff"/>
        <ex:hasDifficulty rdf:resource="HardDiff"/>
        <ex:hasWeather rdf:resource="Sunny"/>
    </rdf:Description>

    <rdf:Description rdf:about="Click">
        <rdf:type rdf:resource="InputModality"/>
        <ex:hasUserProfile rdf:resource="DeafUser"/>
        <ex:hasDifficulty rdf:resource="NormalDiff"/>
        <ex:hasDifficulty rdf:resource="HardDiff"/>
        <ex:hasWeather rdf:resource="Sunny"/>
    </rdf:Description>

    <rdf:Description rdf:about="Blow">
        <rdf:type rdf:resource="InputModality"/>
        <ex:hasUserProfile rdf:resource="NormalUser"/>
        <ex:hasDifficulty rdf:resource="NormalDiff"/>
        <ex:hasDifficulty rdf:resource="HardDiff"/>
        <ex:hasWeather rdf:resource="Cloudy"/>
    </rdf:Description>
```

SPARQL & Query

```java
Query query = QueryFactory.create(
            "PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> "
                    + "PREFIX ex: <http://imi.org/>"
                    + "SELECT ?Modality ?UserProfile ?Difficulty ?Weather"
                    + "WHERE {"
                    + "?Modality ex:hasUserProfile ?UserProfile ."
                    + "?Modality ex:hasDifficulty ?Difficulty ."
                    + "?Modality ex:hasWeather ?Weather ."
                    + "FILTER ( ?UserProfile = <" + user.getURI() + ">) ."
                    + "FILTER ( ?Difficulty = <" + diff.getURI() + ">) ."
                    + "FILTER ( ?Weather = <" + weather.getURI() + ">) ."
                    + "}");
```

Issues & Solutions

- Obtain weather parameters

- Displaying 2 Fragment Layout in the same canvas

- Integration of multi-activities

- Integration of UI design and codes

- Controlling modality by context in RDF file

- Importing RDF and modeling

Action Plan

Seq#	Task	Owner	Time Slots (General)			
1	UI Design	Dan	09/02/2015 (Mon) (DONE)			
2	Weather Clarification	Dan	02/02/2015 (Mon) (DONE)			
3	RDF	Ziyao	02/02/2015 (Mon) (DONE with Delay)			
4	SPARQL Investigation	Ziyao	02/02/2015 (Mon) (DONE with Delay)			
5	API Investigation	GouGe, Jin & Ziyao	02/02/2015 (Mon) (DONE with Delay)			
6	Android Development	GouGe, Jin & Ziyao		02/03/2015 (Mon) (ONGOING)		
7	Report Document (5 pages)	GouGe & Jin			n) (DONE)	
8	Presentation Slides	Dan			3/03/2015 (Tue) (ONGOING)	

Demo