

Alarm Delta UX

Version History

Date	Description	Author
April 27 th 2016	Draft - V1 Review with Shyamala	Winnie Shen
May 2 nd 2016	Draft - V2 Review with Shyamala	Winnie Shen
May 26 th 2016	Draft - V3 Review with Shyamala	Winnie Shen

Summary

This document outlines the requirements for the VB Alarm domain, which is to be shared across Home, Mobile and Automotive Business Units. This structure of this service is a departure from the current building of domains based on customer requests and moves the company towards building services to support products that can be sold to current and potential customers. The project goals are:

- Develop a baseline Alarm domain that is based on the N66 Alarm domain and shared across multiple Business Units

Role	Owner	Status	Date
Product Manager			
Agent Dev			

Voice Design Tenets

Be approachable: To make it easy for users to start the conversation at any time
Listen closely: To show that Xavier is listening through both words and actions/affordances
Intuitive and efficient: To make the interaction intuitive and efficient through natural conversations, Contextual awareness and smart decisions
Adapt user's speaking style: To anticipate what kind of conversation will suit the situation
Error Recovery: To minimize errors and provide recovery mechanism
Progressive Disclosure: Any list more than six items, we will not list out in voice, we will direct user to xavier mobile. (list 3 at a time)

People use alarms when:

- they have a specific time goal in mind (ex. 4 o'clock pm tomorrow)

Timer – Voice User Interface Document

Project Name: Xavier

Date: April 6th 2016

Version: 1

- Version History
- Summary
- Voice Design Tenets
- People use alarms when:
- Alarm Usage Research Data
 - Key Findings
 - Large segment of people being surveyed are interested in these features:
- Survey Results
- Example of Multiple alarms and naming
- Example of Interval Alarms or Timers
- Example of app that allows Setting Alarm to a Radio Station
 - Voice User Interface (VUI)
 - 1. Set interval alarms
 - 1.1 Set interval alarm (no detail specification)
 - 1.2 Set interval alarm (details specified)
- Possible Utterance 1: "Set an alarm that rings every 2 hours until midnight"
- keywords: <start time> <interval> <end time>
- VUI Flow
- 2. Set recurring interval alarm
 - 2.1 Set recurring interval alarm details specified
 - Possible Utterance 1:
- 3. Check inactive alarms
- 4. Stop alarm
 - 4.1 Single
 - Alarm will continue to notify the user until they're disabled manually, or 1 hour has passed.
 - 1 hour is a default value applied to all users, but should be configurable per user.
 - When multiple alarm fires at the same time
- Mobile Wireframes

Some examples include:



Wakeup from sleep
or power naps



Leave home to go
to work or school



Exercise



Pick up Kids



Be on time
for meetings



Other
Reminders

People use interval alarms or recurring interval alarms when:



Feed Child



Meditation



Take Medicine



Exercise



Interval Alarm

For the users the alarm feature should:

- be 100% Reliable
- be easy to customize
- be easy to set up
- be easy to check
- be able to be named
- support multiple alarms at the same time

Alarm Usage Research Data

A survey was conducted to understand users' mental models with alarms, active from May 27th to May 30th 2016. It was created using survey monkey, and distributed via social media to the tester's network. There were **128** respondents.

Survey here: <https://www.surveymonkey.com/r/5S8RMM2>

Key Findings

Large segment of people being surveyed are interested in these features:

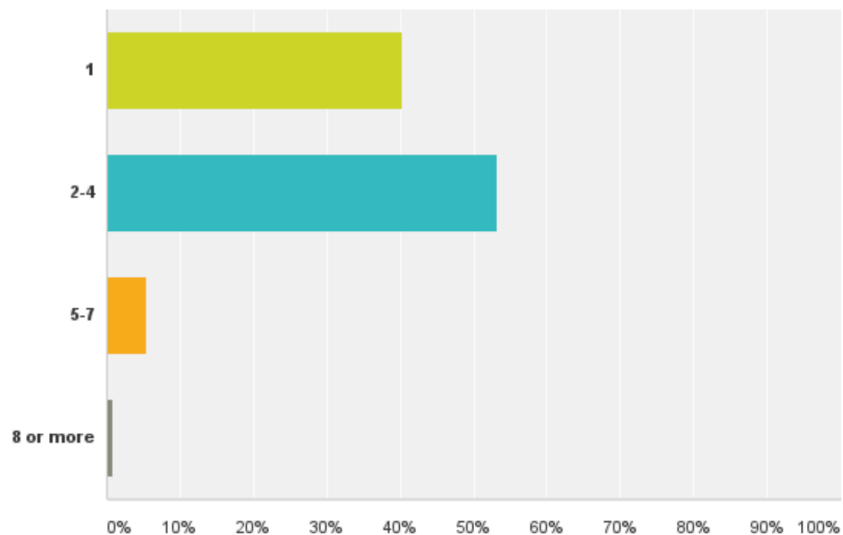
- naming alarms
- interval alarms
- recurring alarms
- radio station as alarm sound
- music as alarm sound

- most people on average set 2-4 alarms for a day
- most people occasionally review their inactive alarms

Survey Results

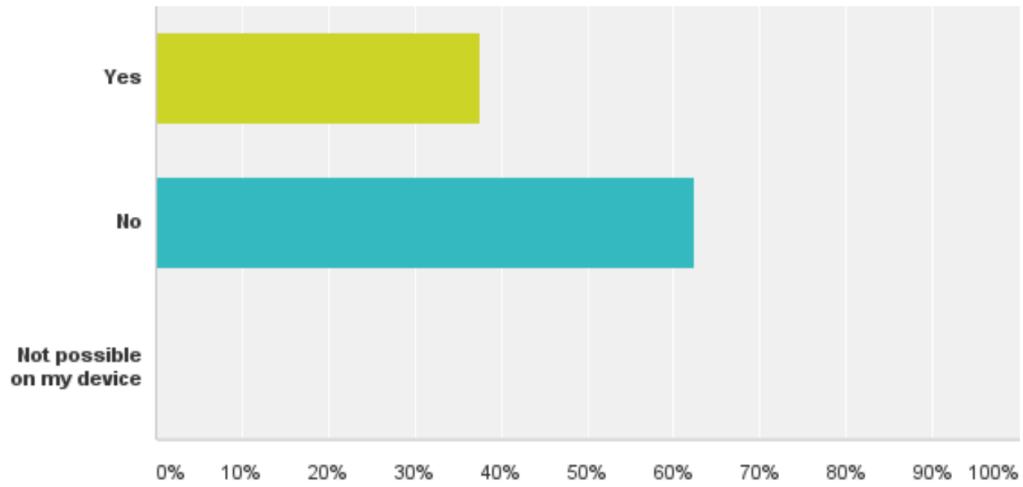
Q2: How many different alarms do you have set for each day (on average)?
Consider all alarms you use on different devices

Answered: 109 Skipped: 19



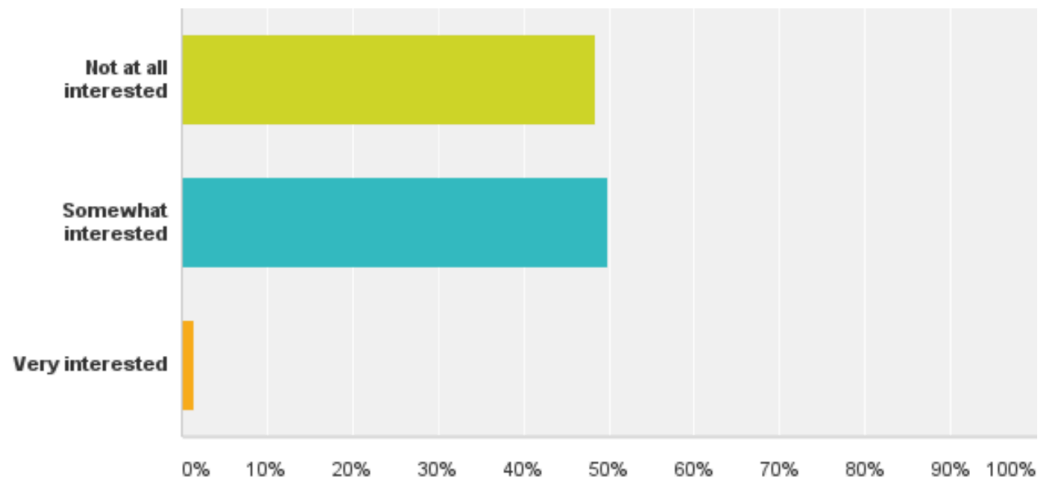
Q3: Do you name your alarms when you set them?

Answered: 109 Skipped: 19



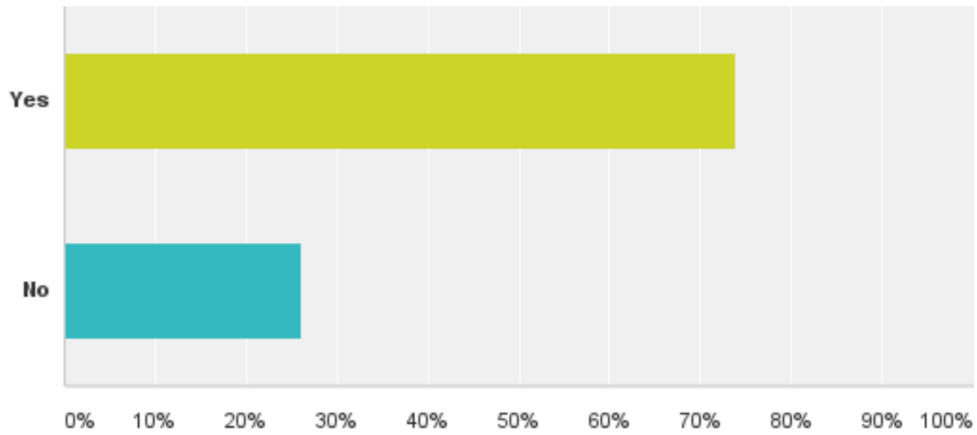
Q5: If currently not naming the alarms How interested are you in being able to name alarms?

Answered: 66 Skipped: 62



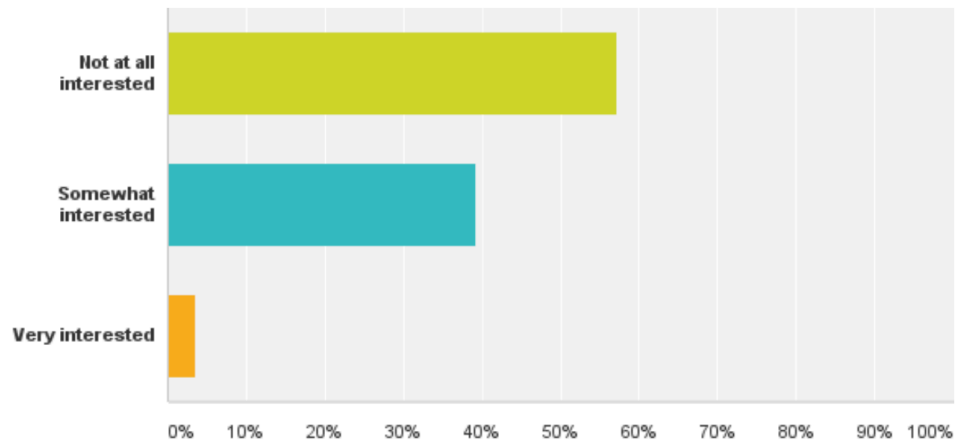
Q6: Do you use recurring alarms (alarms that are set to repeat automatically)?

Answered: 107 Skipped: 21



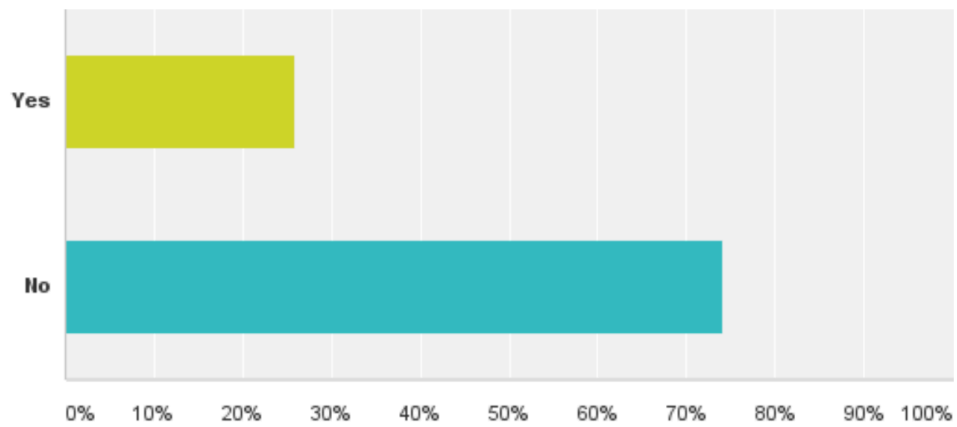
Q9: If currently not using recurring alarms How interested are you in using recurring alarms?

Answered: 28 Skipped: 100



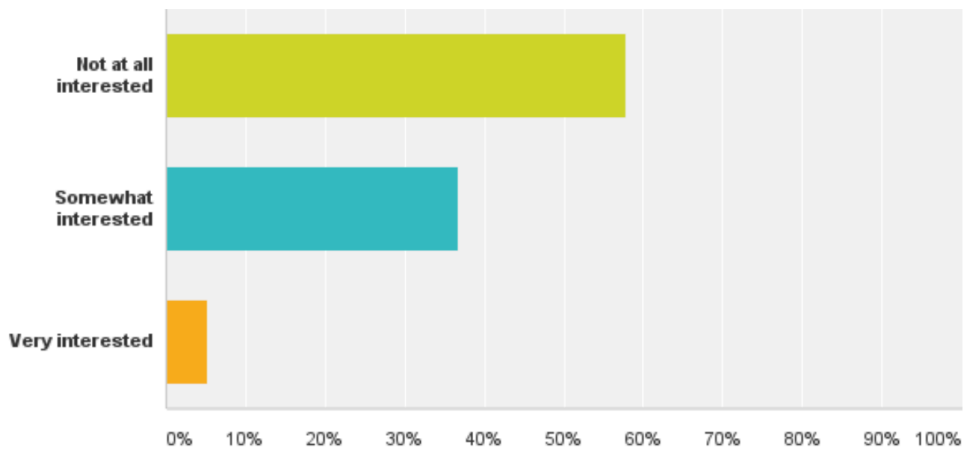
Q10: Do you ever use interval alarms?

Answered: 104 Skipped: 24



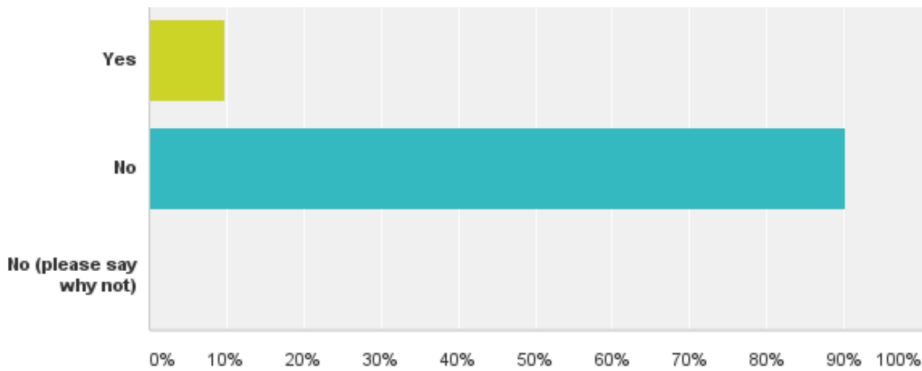
Q13: If currently not using interval alarms How interested are you in using interval alarms?

Answered: 76 Skipped: 52



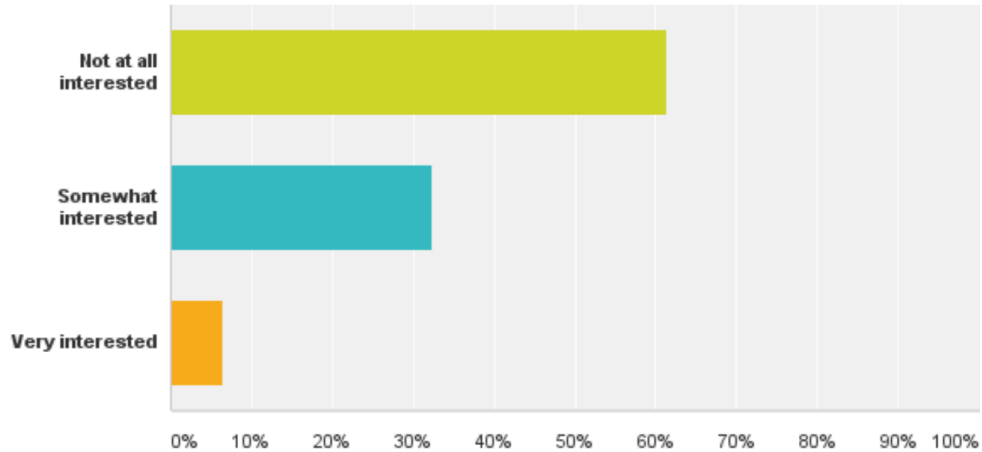
Q15: Do you use radio stations as your alarm sound?

Answered: 103 Skipped: 25



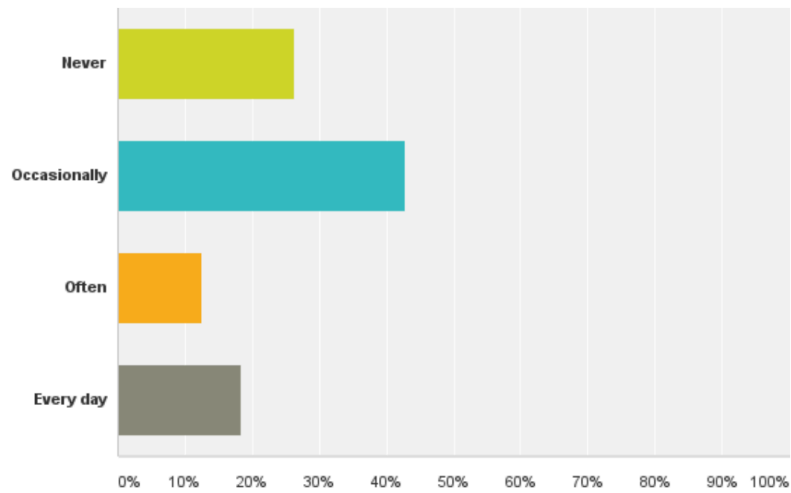
Q17: If currently not using radio stations as alarm sound How interested are you in having radio stations as your alarm sound?

Answered: 93 Skipped: 35



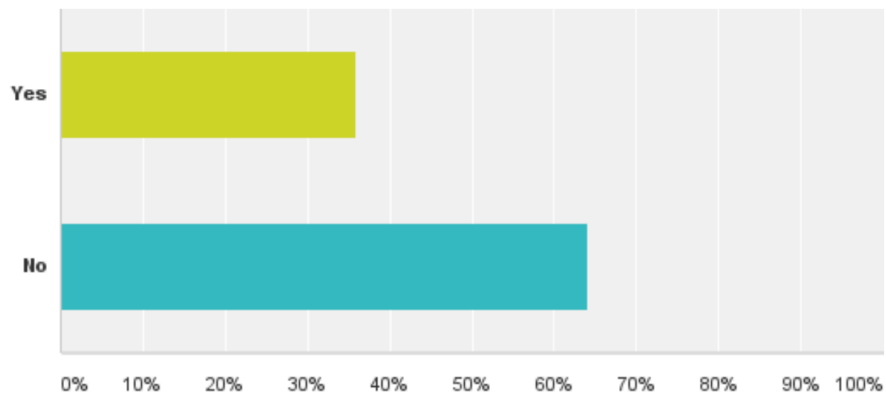
Q18: How often do you listen to radio stations in the morning?

Answered: 103 Skipped: 25



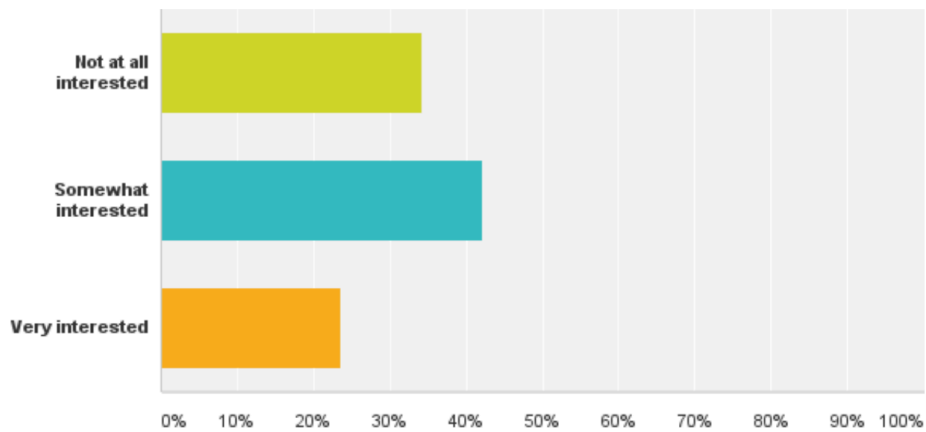
Q19: Do you use music as your alarm sound?

Answered: 103 Skipped: 25



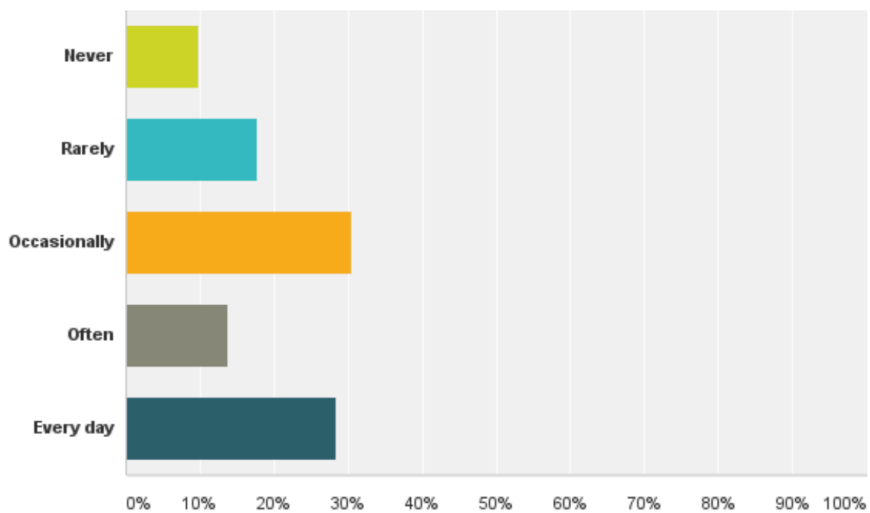
Q21: If currently not using music as alarm sound How interested are you in having music as your alarm sound?

Answered: 102 Skipped: 26



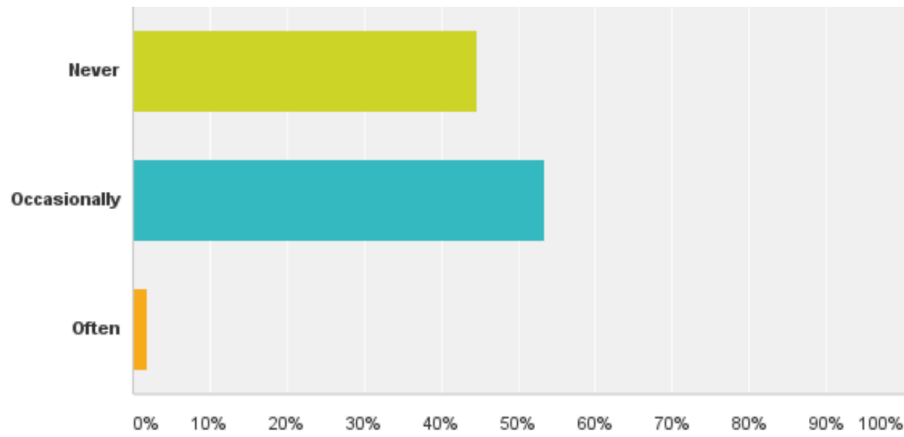
Q22: How often do you listen to music in the morning?

Answered: 102 Skipped: 26



Q14: How often do you review your inactive alarms?

Answered: 103 Skipped: 25

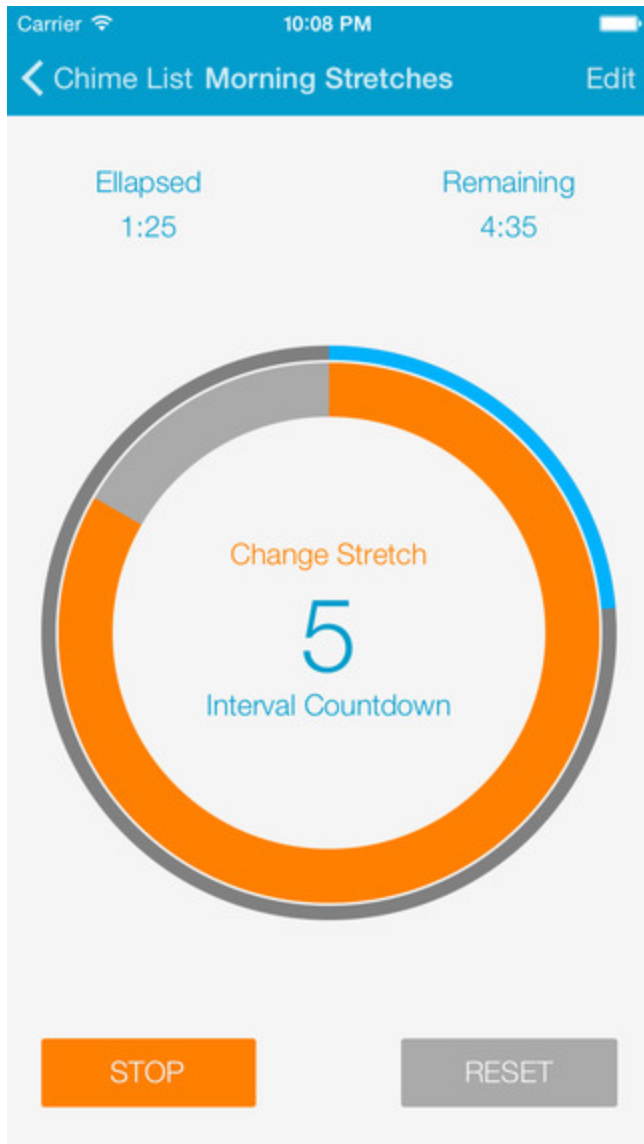


Example of Multiple alarms and naming

These are some good example alarm UI that creates easy and intuitive control of multiple alarms



Example of Interval Alarms or Timers



Title

Stretch

Repeat

Repeat style [Sets >](#)

Ask for value on every run

Sets **1**

Chime Sounds

Bell

Triangle

Alarm

Flute

< Done

Interval

Title

Look away

Length

Hours

20

Seconds

Interval name

Elliptical

00:10



hour Daily Practice 30 m

3 Chimes
Interval: 3:45 minutes
15:00

Yoga Meditation Tai Chi



Journal



Categories



Progress



Settings



Sounds

Carrier

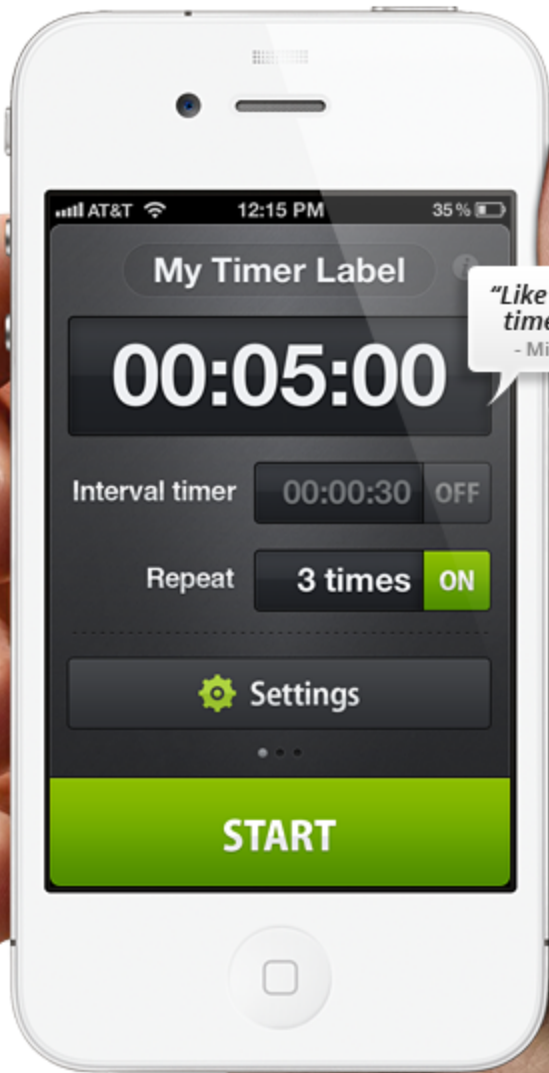
10:30 AM



Meditation



Sounds

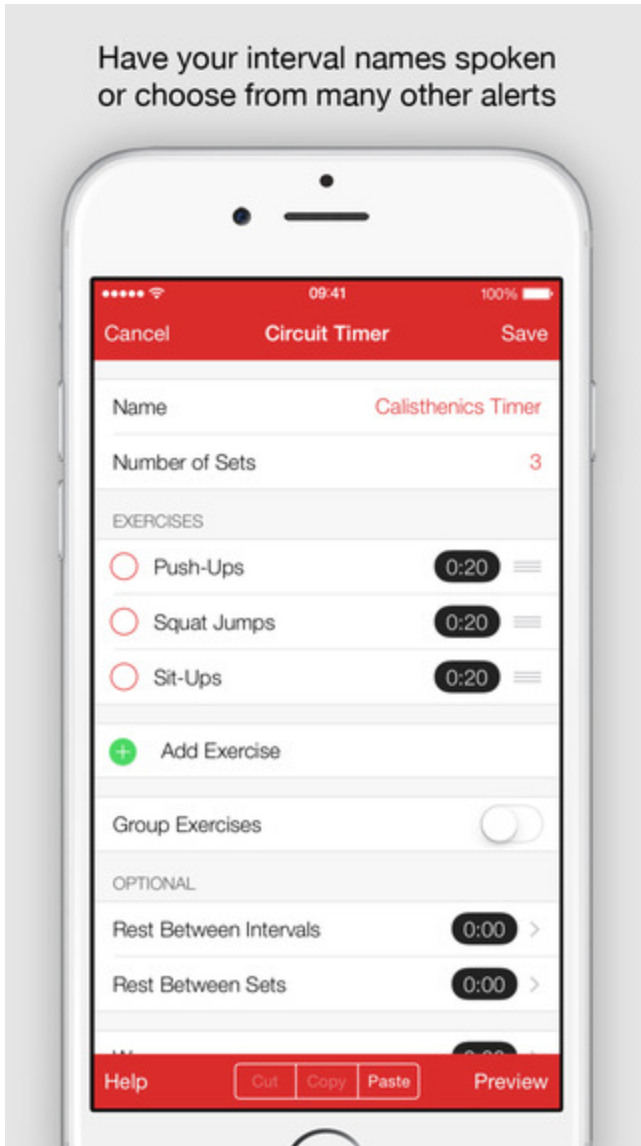


"Like the best timer ever!"
- Mingze Li



Available on the iPhone
App Store

Have your interval names spoken
or choose from many other alerts




Example of app that allows Setting Alarm to a Radio Station


Cancel **Set Alarm** Done

10	04	
11	05	AM
12	06	PM
1	07	
2	08	

Station Kendrick Lamar Radio >

Snooze 5 minutes >

Volume 

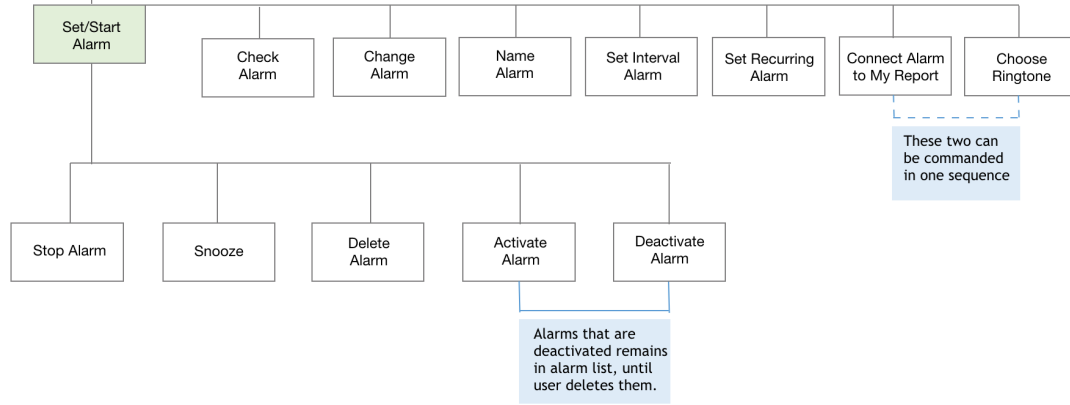
 How it works

Alarm Information Architecture



Alarm

Note: maximum number of alarm is 1000.



Voice User Interface (VUI)

Comparison between current Agent Walkthrough and new VUIs







Use Case	Agent Walkthrough	VUI created
set interval alarm		
set recurring interval alarm		
check inactive alarms		
cancel/deactivate (turn off) alarm (no alarm specified)		
stop alarm		
snooze alarm (single alarm)		
snooze alarm (multiple alarms)		
alarm fires with music		
alarm fires with My Report		
alarm fires with music, then plays My Report		
alarm fires with radio station		
disambiguation - user set interval alarm exceeding the 12 hours maximum time limit		
disambiguation - user commands time duration to set an alarm		
"set an alarm for <alarm_datetime> called <alarm_name>"		
"turn off all of my alarms"		

"turn on all of my alarms"		
"set an alarm"		
"set an alarm for <alarm_day>"		
"set an alarm called <alarm_name> for <alarm_day>"		
"change my alarm"		
"change day of alarm to <alarm_day>"		
"change my alarm time and day to <alarm_time> on <alarm_day>"		
"change my alarm time to <alarm_time>"		
"change <alarm_day> alarm"		
"change my <alarm_time> alarm to <alarm_time2>"		
"change the time of the <alarm_time> alarm"		
"change <alarm_time> alarm"		
"change <alarm_name> alarm"		
"set an alarm called <alarm_name>"		
"set an alarm for <alarm_recurday> at <alarm_time> called <alarm_name>"		
"set an alarm for <alarm_recurday>"		
"set a recurring alarm called <alarm_name> for <alarm_recurday>"		
"set an alarm for <alarm_recurday> at <alarm_time>"		
"set an alarm for <alarm_datetime>"		
"set an alarm called <alarm_name> at <alarm_time>"		
"set an alarm for <alarm_time>"		
"set an alarm for <alarm_datetime>"		
"set an alarm called <alarm_name> at <alarm_time>"		
"turn off my <alarm_day> alarm"		
"turn off my <alarm_name> alarm"		
"turn off my <alarm_time> alarm"		
"turn on my <alarm_day> alarm"		
"turn on my <alarm_name> alarm"		
"turn on my <alarm_time> alarm"		
"delete my <alarm_day> alarm"		
"delete <alarm_datetime> alarm"		
"delete my <alarm_name> alarm"		
"delete my <alarm_time> alarm"		

"delete my alarm"		
"delete my <alarm_span> alarms"		
"delete all my alarms"		
"delete my next alarm"		
"help me with alarms"		
"" (No-Op Alarm Notification)		
"" (No-Op AMPMambiguous)		
"change my Thursday alarm to Friday" (unsupported Features)		
"show my alarms for <alarm_day>"		
"show my <alarm_datetime> alarm"		
"show my <alarm_name> alarm"		
"show my <alarm_time> alarms"		
"show my alarms"		
"show my alarms for <alarm_span>"		
"show missed alarms"		

1. Set interval alarms

Capabilities Comparison

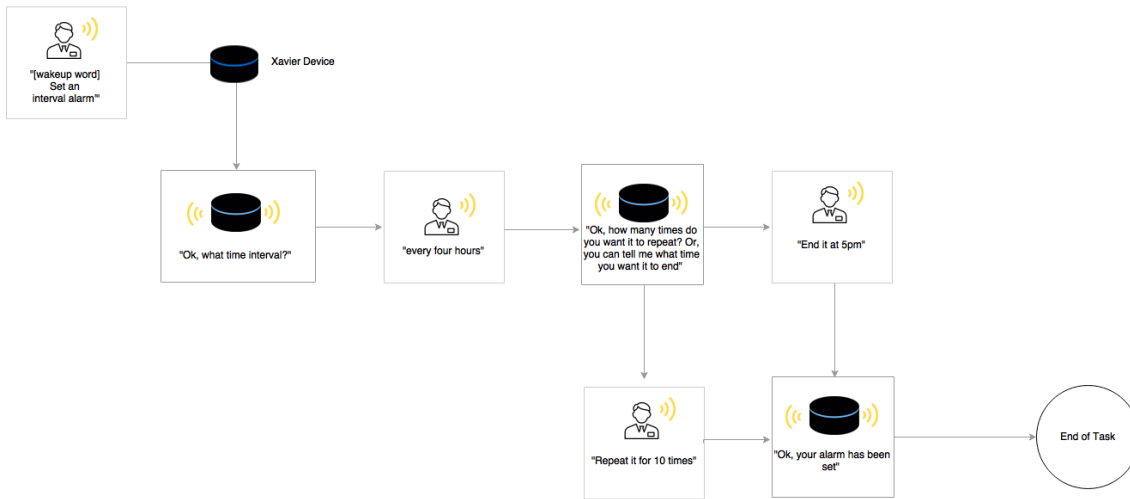
Interval Timer	Interval Alarm
 no start time	 start time
 no end time	 end time
 no recurrence	 recurrence

1.1 Set interval alarm (no detail specification)

We always guide user in the following sequence priority:

find out what's the <interval>, then find out the <repeat number> or <end time>

We leave out guiding through this sequence: <interval> <duration> , because it's too complicated for user to figure out the duration <x> hours or <x> minutes, easier to tell repeat number or end time.



1.2 Set interval alarm (details specified)

* When no start time specified, default it to be the time user sets this alarm.

3 Ways User Can Set Interval Alarms:

1

Start Time

<clock hour> or now

Interval

every <x> min or <x> hour

Repeat

<x> times

2

Start Time

<clock hour> or now

Interval

every <x> min or <x> hour

End Time

<clock hour>

3

Start Time

<clock hour> or now

Interval

every <x> min or <x> hour

Duration

<x> min or <x> hours

We calculate:

End Time

<clock hour>

$\langle \text{interval} \rangle \times \langle \text{repeat number} \rangle$
 $+ \langle \text{start time} \rangle = \langle \text{end time} \rangle$

We calculate:

Repeat

<x> times

$(\langle \text{End Time} \rangle - \langle \text{Start Time} \rangle)$ divide by
 $\langle \text{Interval Number} \rangle = \langle \text{repeat number} \rangle$

In case where the <repeat number> is not a whole number, such as 4.5 times, we repeat 4 times, and ignore the decimal

We calculate:

End Time

<clock hour>

$\langle \text{start time} \rangle +$
 $\langle \text{duration} \rangle = \langle \text{end time} \rangle$

Repeat

<x> times

$\langle \text{duration} \rangle$ divide by
 $\langle \text{interval} \rangle =$
 $\langle \text{repeat number} \rangle$

If <repeat number> equals to a number that has decimals, we use the whole number as the repeat number and ignore the decimals. Ex. if repeat number equals 6.67 times, we repeat the alarm for 6 times

Possible Utterance 1: "Set an alarm that rings every 2 hours until midnight"

keywords: <start time> <interval> <end time>

No <repeat number> specified.

When these conditions are specified, we calculate what the <repeat number> is through formula such as:

$(\langle \text{End Time} \rangle - \langle \text{Start Time} \rangle)$ divide by $\langle \text{Interval Number} \rangle = \langle \text{repeat number} \rangle$

In case where the <repeat time> is not a whole number, such as 4.5 times, we repeat 4 times, and ignore the decimal

Possible Utterance 2: "Set an alarm that rings every 2 hours for 10 times"

Keywords: <start time> <interval> <repeat number>

No <end time> specified.

When these conditions are specified, we calculate what the end time is for this alarm.

$\langle \text{interval} \rangle \times \langle \text{repeat number} \rangle + \langle \text{start time} \rangle = \langle \text{end time} \rangle$

Possible Utterance 3: "Set an alarm that rings every 2 hours for 24 hours"

Keywords: <start time> <interval> <duration>

No <end time> and <repeat number> specified.

When these conditions are specified, we calculate what the <repeat times> and <end times> are using formula such as:

$$\text{<start time> + <duration> = <end time>}$$

$$\text{<duration> divide by <interval> = <repeat number>}$$

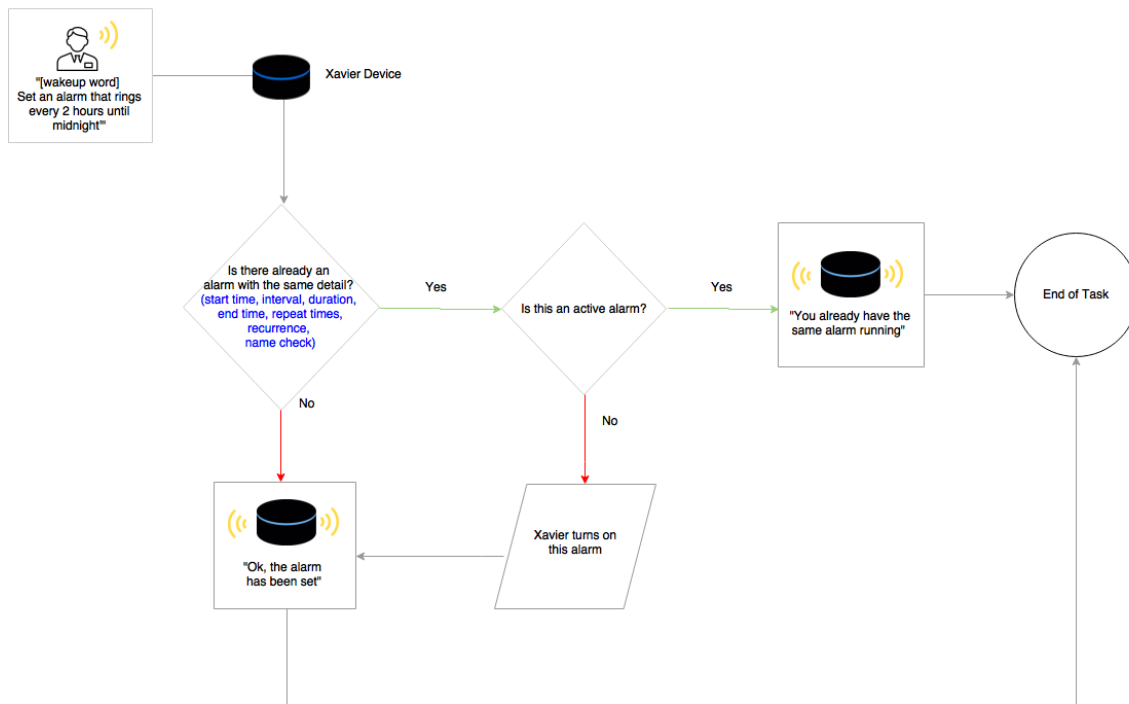
if <repeat number> equals to a number that has decimals, we use the whole number as the repeat number and ignore the decimals. Ex. if repeat number equals 6.67 times, we repeat the alarm for 6 times

Possible Utterance 4: "Set an alarm that rings every 2 hours"

Key words: <start time> <interval> <no end time>

When these conditions are specified, we assume user wants to set an interval alarm that runs forever, until user turns it off.

VUI Flow



2. Set recurring interval alarm

2.1 Set recurring interval alarm details specified

Possible Utterance 1:

Keywords: <start time> <interval> <repeat number> <recurrence>

No <end time> specified.

When these conditions are specified, we calculate what the <end time> is for this alarm.

$\text{<interval>} \times \text{<repeat number>} + \text{<start time>} = \text{<end time>}$

Possible Utterance 2:

Keywords: <start time> <interval> <end time> <recurrence>

No <repeat number> specified.

When these conditions are specified, we calculate what the <repeat number> is through formula such as:

$(\text{<End Time>} - \text{<Start Time>}) \text{ divide by } \text{<Interval Number>} = \text{<repeat number>}$

In case where the <repeat number> is not a whole number, such as 4.5 times, we repeat 4 times, and ignore the decimal

Possible Utterance 3:

Keywords: <start time> <interval> <duration> <recurrence>

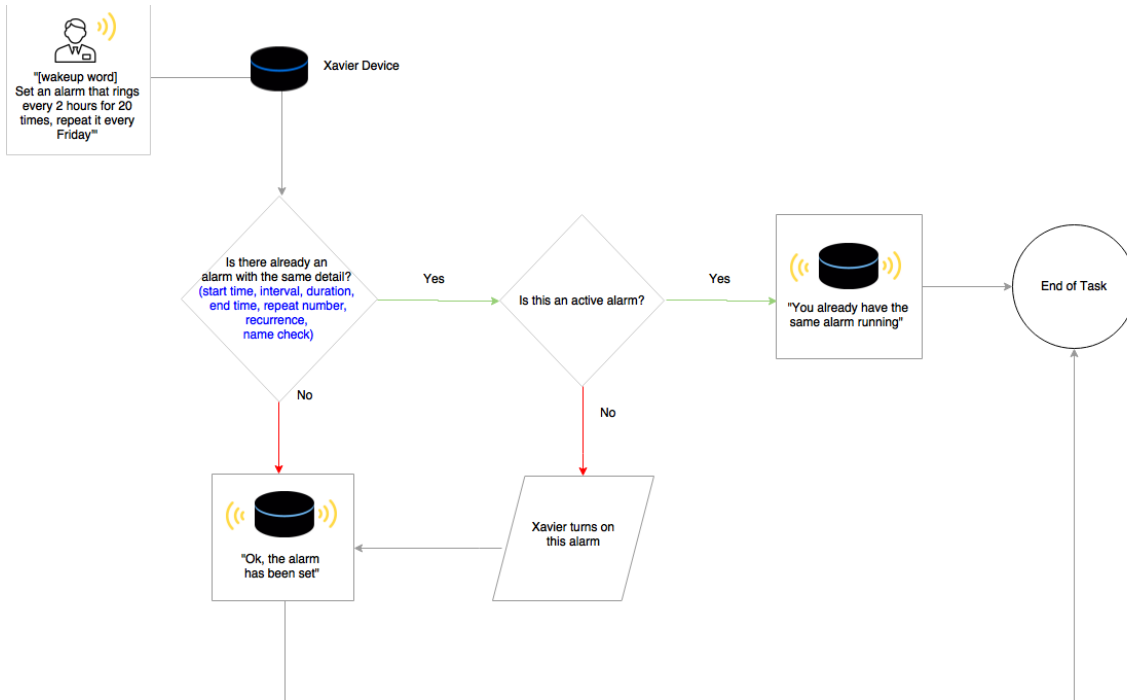
No <end time> and <repeat number> specified.

When these conditions are specified, we calculate what the <repeat number> and <end times> are using formula such as:

$\text{<start time>} + \text{<duration>} = \text{<end time>}$

<duration> divide by <interval> = <repeat number>

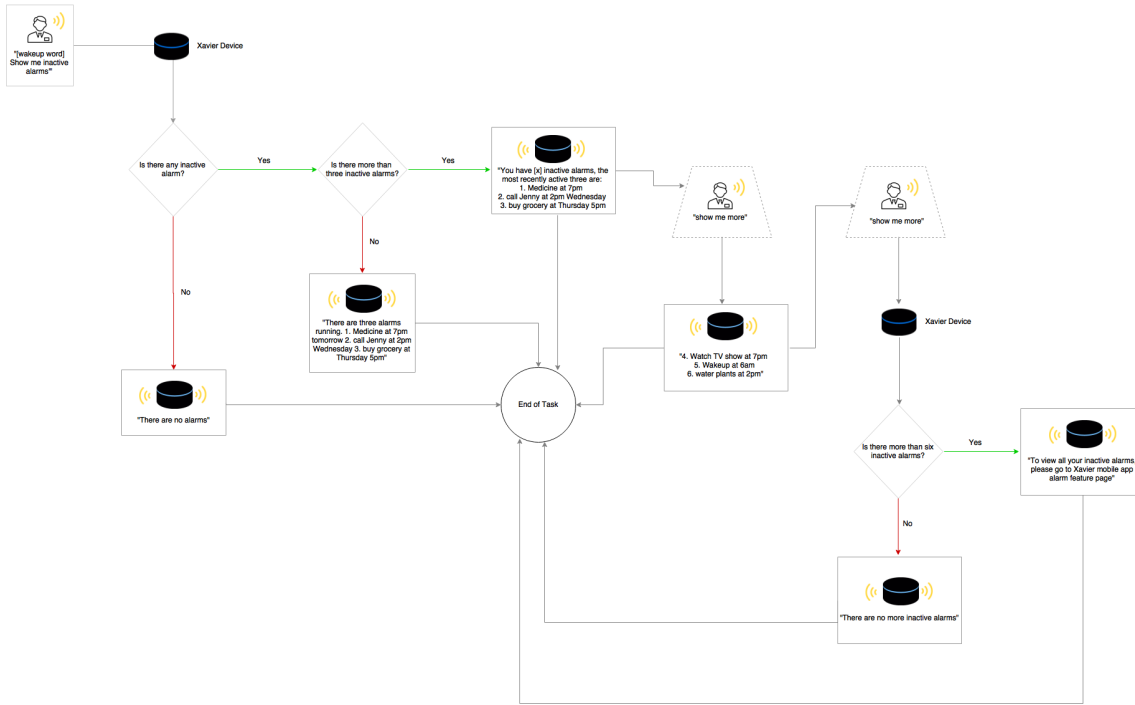
if <repeat number> equals to a number that has decimals, we use the whole number as the repeat times and ignore the decimals. Ex. if repeat number equals 6.67 times, we repeat the alarm for 6 times



3. Check inactive alarms

Utterance: "show me inactive alarms"

Business logic: when there is more than 6 items to show, only show 6 through voice, show 3 at a time, and encourage user to go to Xavier mobile to see all items.

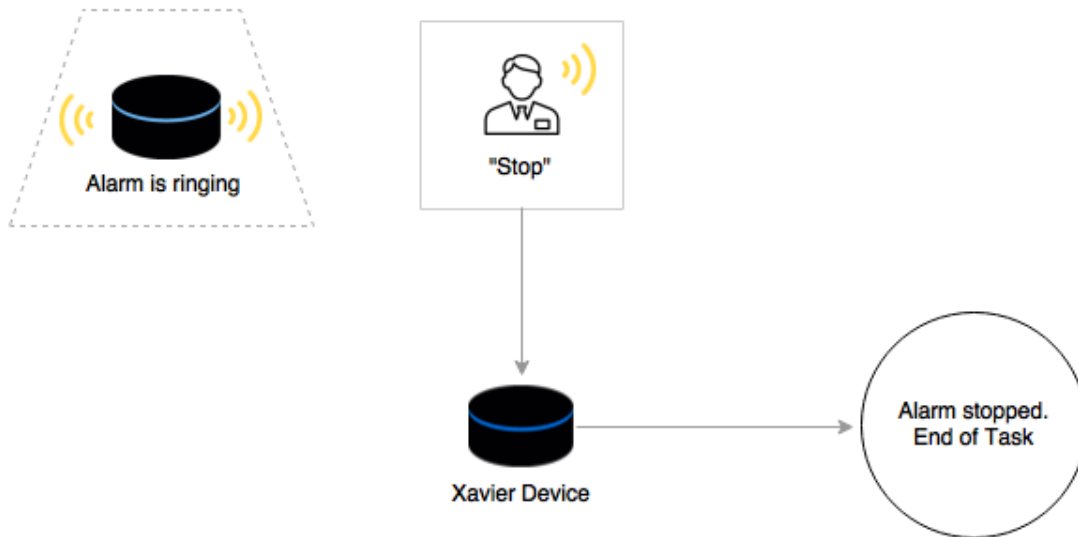


4. Stop alarm

4.1 Single

Alarm will continue to notify the user until they're disabled manually, or 1 hour has passed.

1 hour is a default value applied to all users, but should be configurable per user.



When multiple alarm fires at the same time

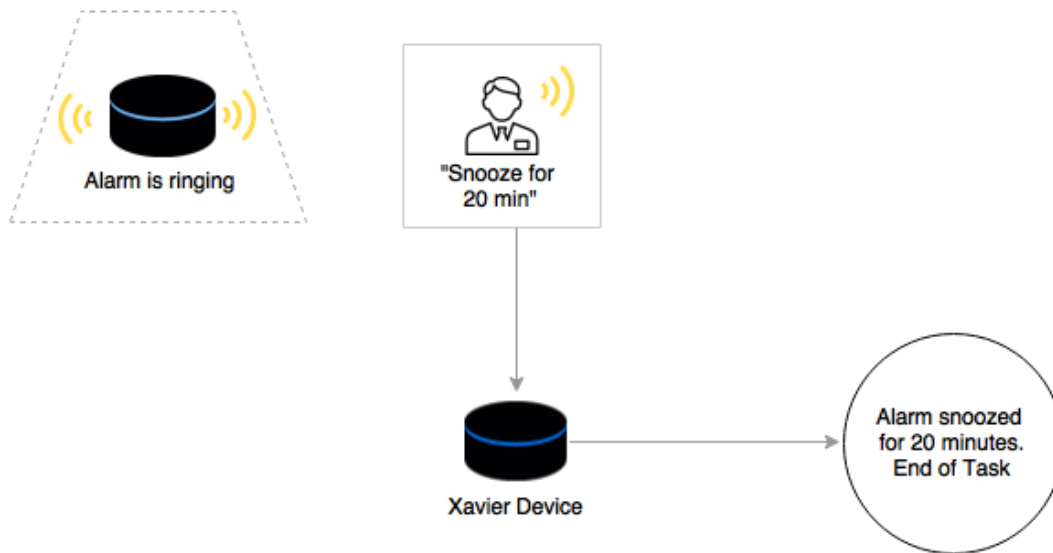
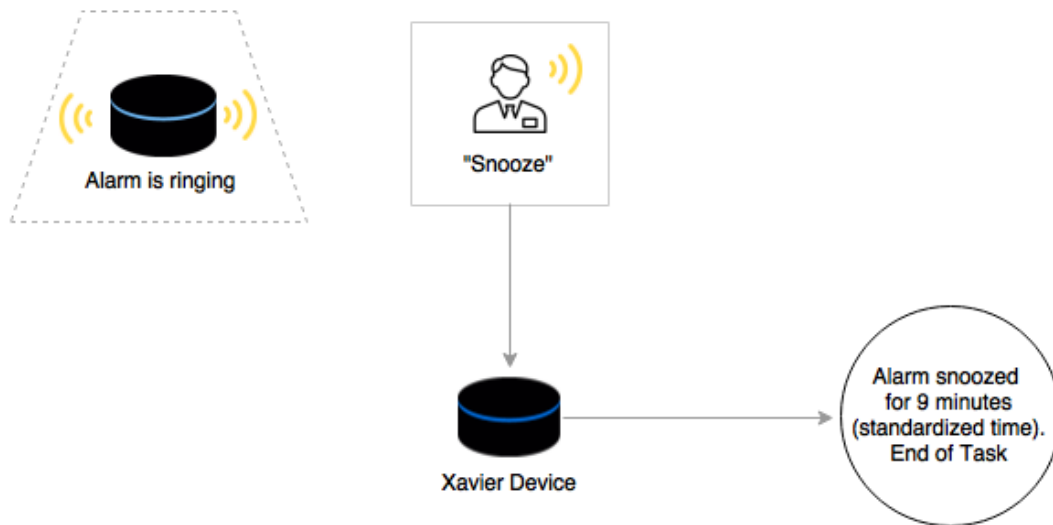
Business logics:

- When multiple alarms are set for the same time, or alarm 2 fires when alarm 1 has not been turned off. Xavier will read: alarm 1's name, then alarm 2's name immediately. Repeating until alarm has been stopped. The sound will be playing at quieter volume beneath the announcing of names, and the sound will be alarm 1's sound setting.
- When user says "stop" in multiple alarm scenario, Xavier will stop all alarms.
- If alarm has been fired for 10 minutes, and was not snoozed, or stopped, Xavier will start announcing alarm name and its time. (Interval alarms excepted)

5. Snooze alarm

5.1 Snooze single alarm. Time interval not specified and time interval specified cases

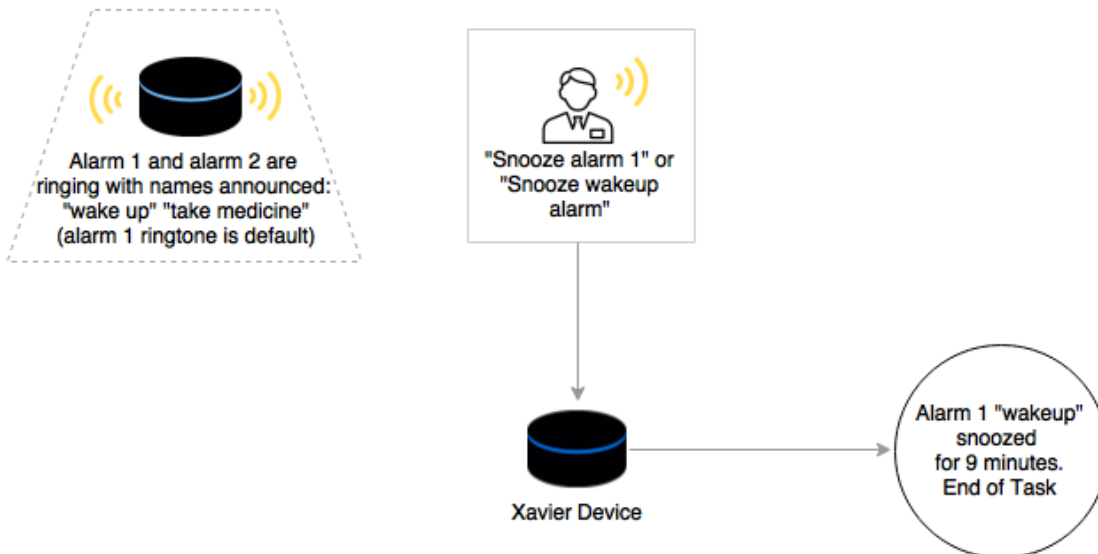
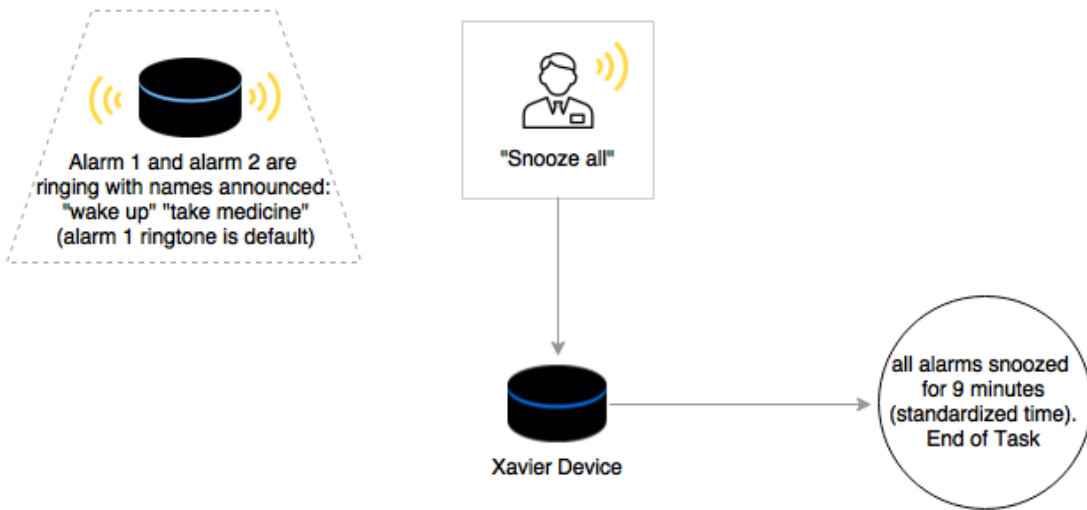
Note: Default snooze time is 9 minutes, but this value can be overridden per user, across all their alarms.



5.2 Snooze multiple alarms that are going at same time

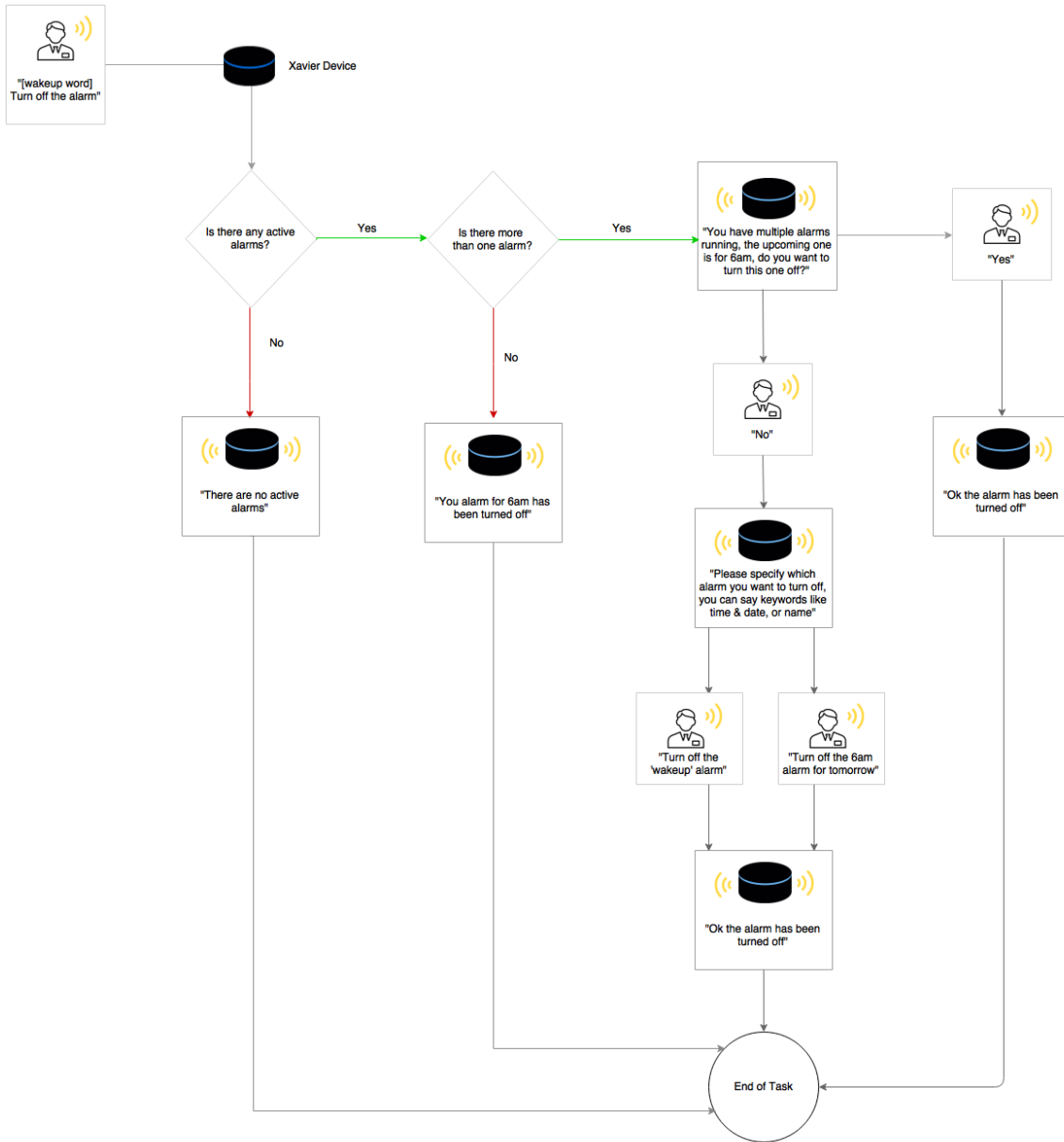
Business logics:

- When multiple alarms are set for the same time, or alarm 2 fires when alarm 1 has not been turned off. Xavier will read: alarm 1's name, then alarm 2's name immediately. Repeating until alarm has been stopped. The sound will be playing at quieter volume beneath the announcing of names, and the sound will be alarm 1's sound setting.
- When user says "snooze" in multiple alarm scenario, Xavier will snooze all alarms.
- If alarm has been fired for 10 minutes, and was not snoozed, or stopped, Xavier will start announcing alarm name and its time. (Interval alarms excepted)



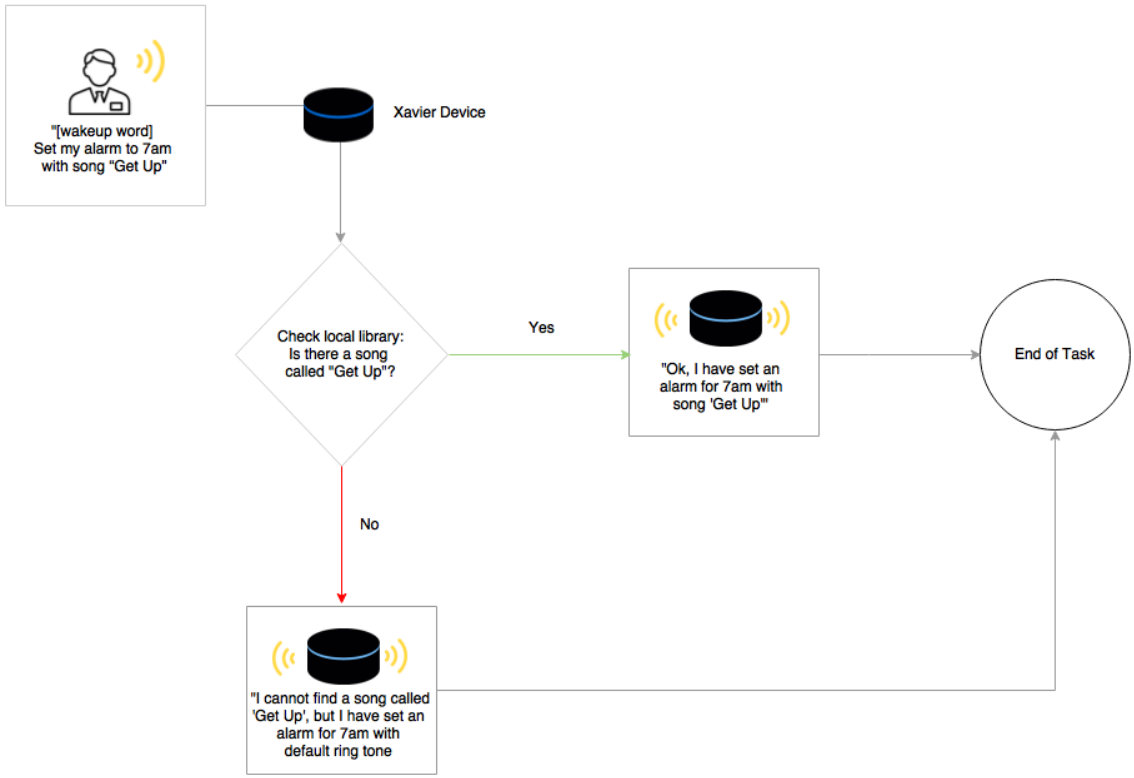
6. Deactivate alarm: no alarm specified

Possible utterances: "Turn off the alarm" "Deactivate the alarm" "Cancel the alarm"

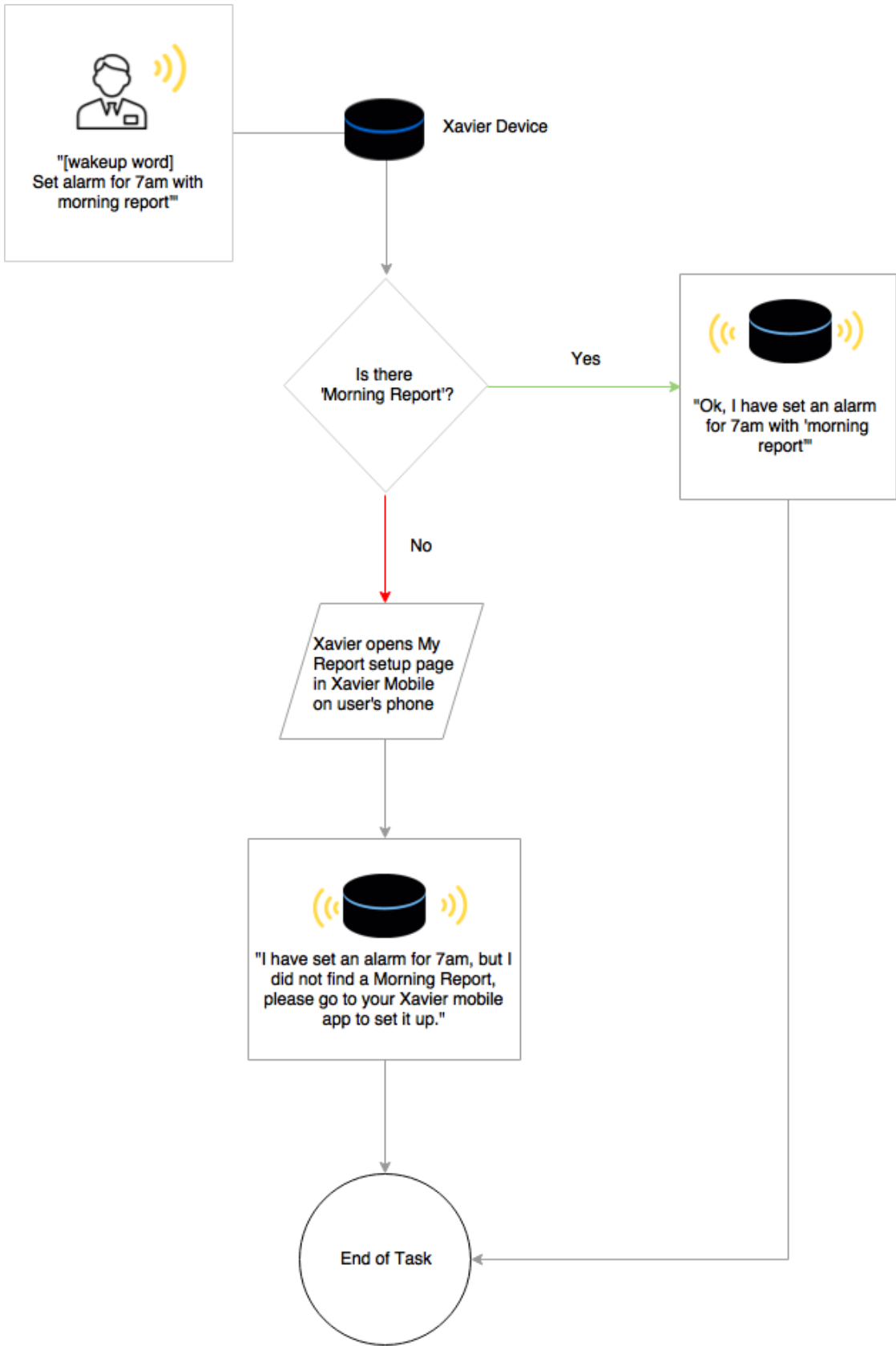


7. Alarm fires with Local Music

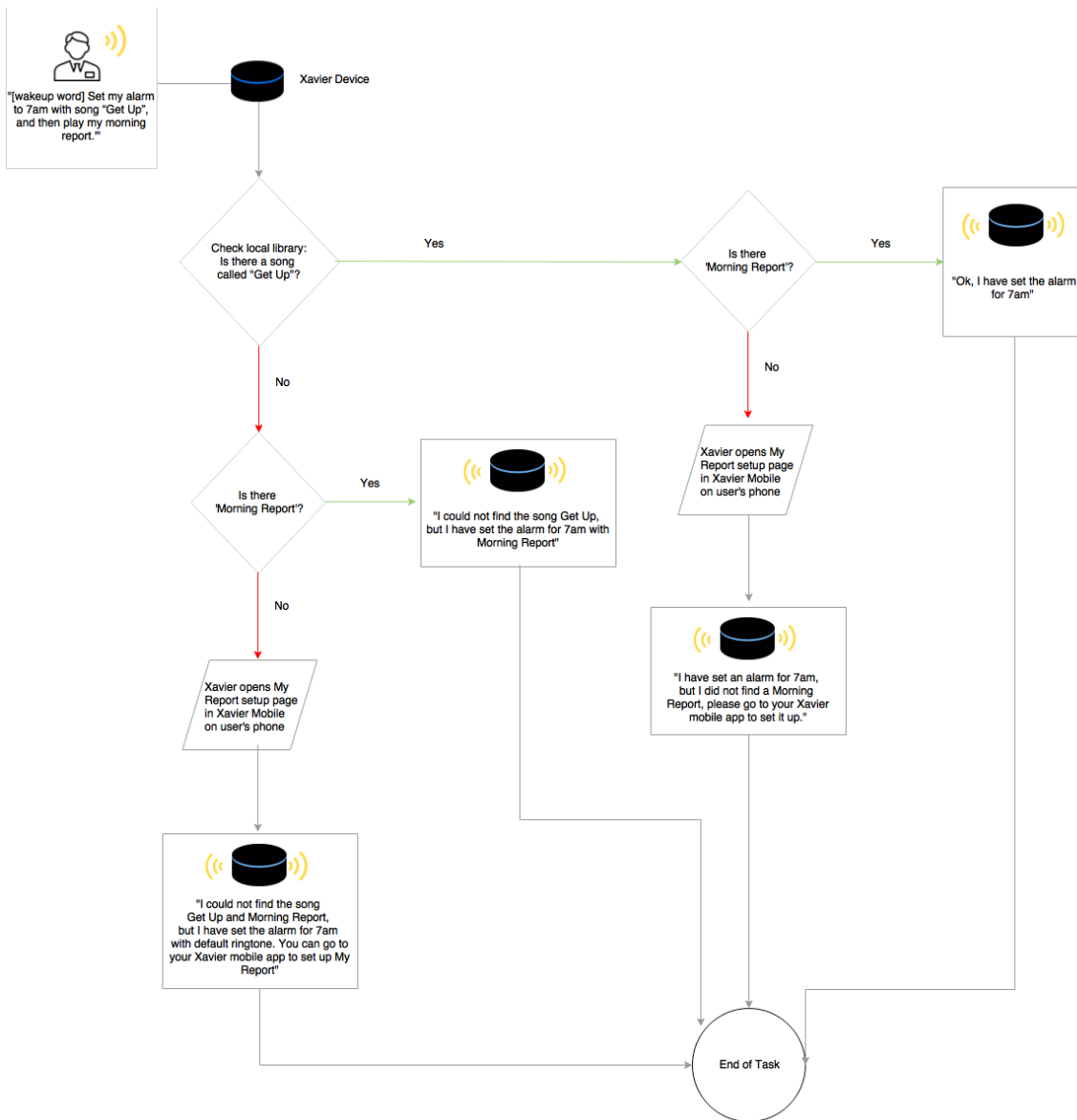
Business Logic: we only support local music



8. Alarm fires with My Report



9. Alarm fires with Music, then plays My Report



10. Alarm fires with Radio Station

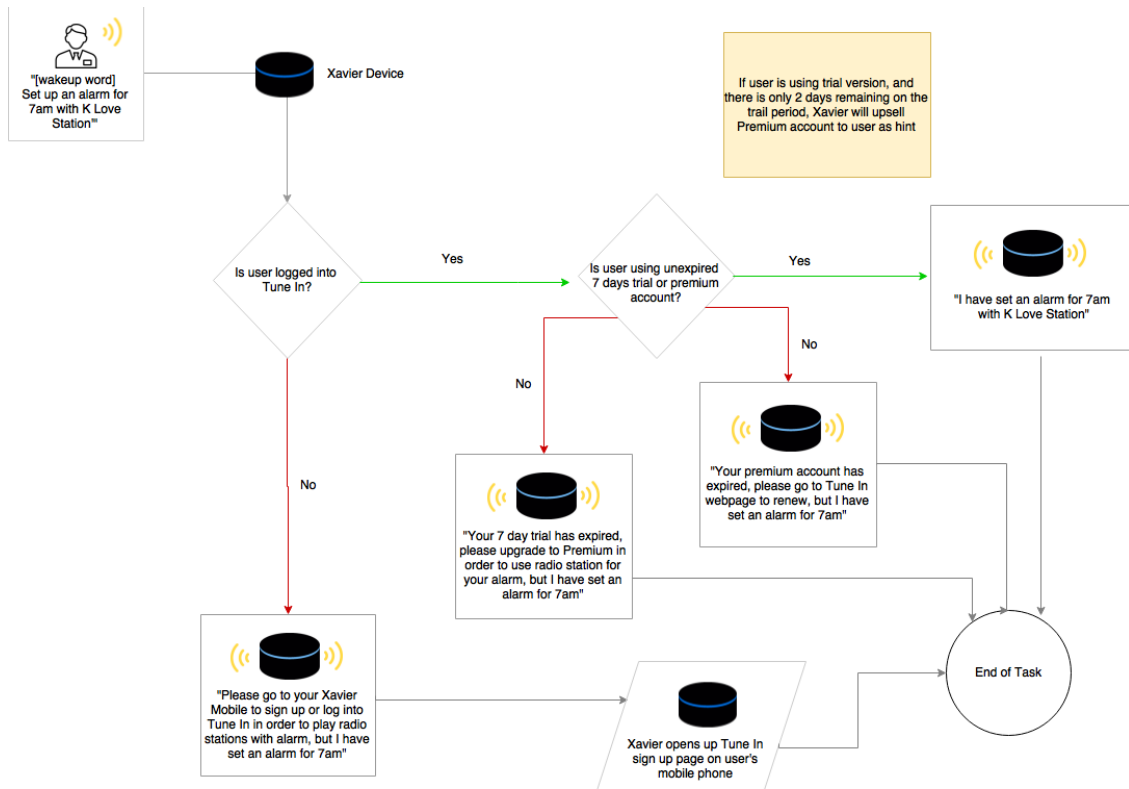
10.1 User specifies radio station

Possible Utterances:

"Set up an alarm for 7am with K Love station"

"Set up an alarm for 7am with K Love radio"

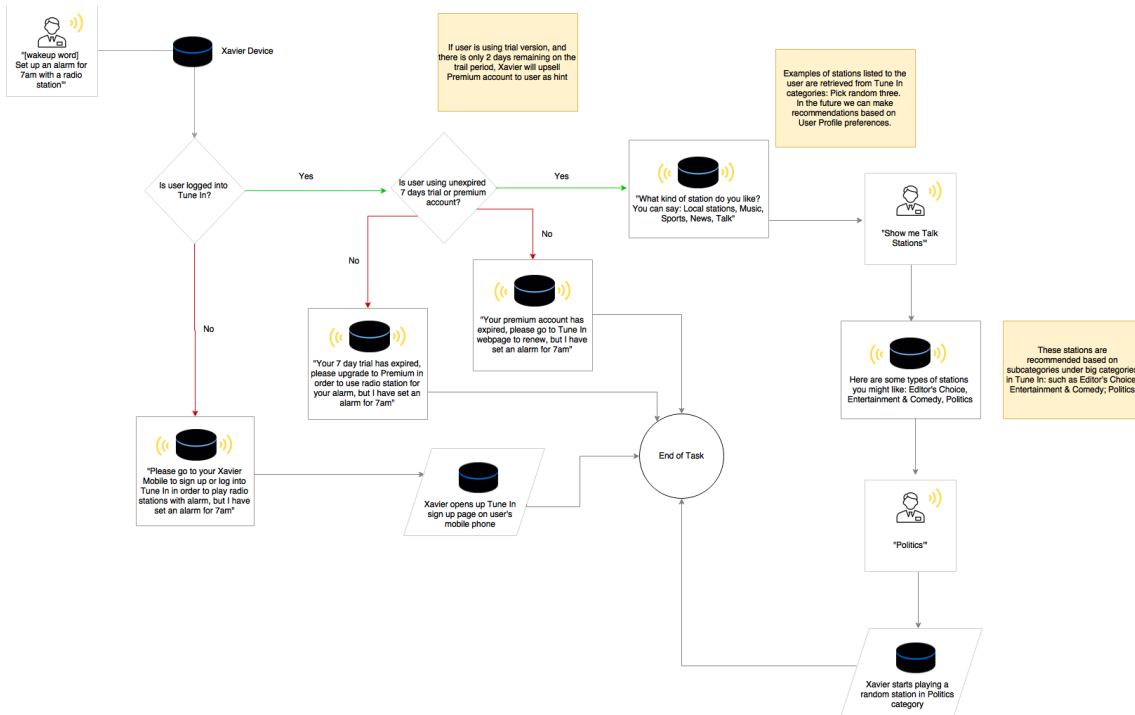
"Wake me up with K Love Station"



10.2 User doesn't specify radio station

Possible utterances:

"Set up an alarm for 7am with a radio station"



Disambiguation

Dialog	Ambiguous Keyword	Disambiguation Question	Solution	Comments
Set interval alarm with 13 hours interval until Thursday at 5pm	>12 hours interval	Xavier does not support interval more than 12 hours apart, can we still complete the task for the user without complicating the user experience?	Xavier cannot set interval alarm exceeding 12 hours interval. Respond. "Sorry I cannot set interval more than 12 hours apart"	
Set an alarm for 30 min	30 min	Xavier cannot set alarm with a time duration command.	Xavier recognizes "minutes" as time duration, so it uses Timer domain to set 30 min timer instead of an alarm. Alarm commands always have end time, ex. 5 pm (except interval alarms); and timer command always have duration, ex. 3 hours. Respond. "30 min starting now"	
Set an alarm for June 24th 5pm	June 24th 5pm	June 24th 5pm is more than 24 hours ahead of time from <now>. Alarm does not support being set for more than 24 hours ahead. How can we complete the task for user under this condition?	Xavier adds new reminder for the time specified. Respond. "I have setup a reminder for June 24th 5pm"	

Mobile Wireframes