# SKSVPX001

# OVERALL SOLUTION ARCHITECTURE :

**Problem statement**

**Target Audience**
The users will be children under grade 5, that have difficulties with reading time in different ways, both in analog and digital, users audience that understands time but can cannot verbally translate time, audience that does not understand numbers.

**Description of overall architecture**

The overall architecture design will be a mobile application that will run on both iOS and Android app. The web app will not be applicable so there will be no server that is required to interface with the mobile app. Application is all put together and you'll be able to download it from the Play Store and the Apple store with all the features inside without any extra downloads apart from the mentioned one the fore is accessible.

*Includes*:

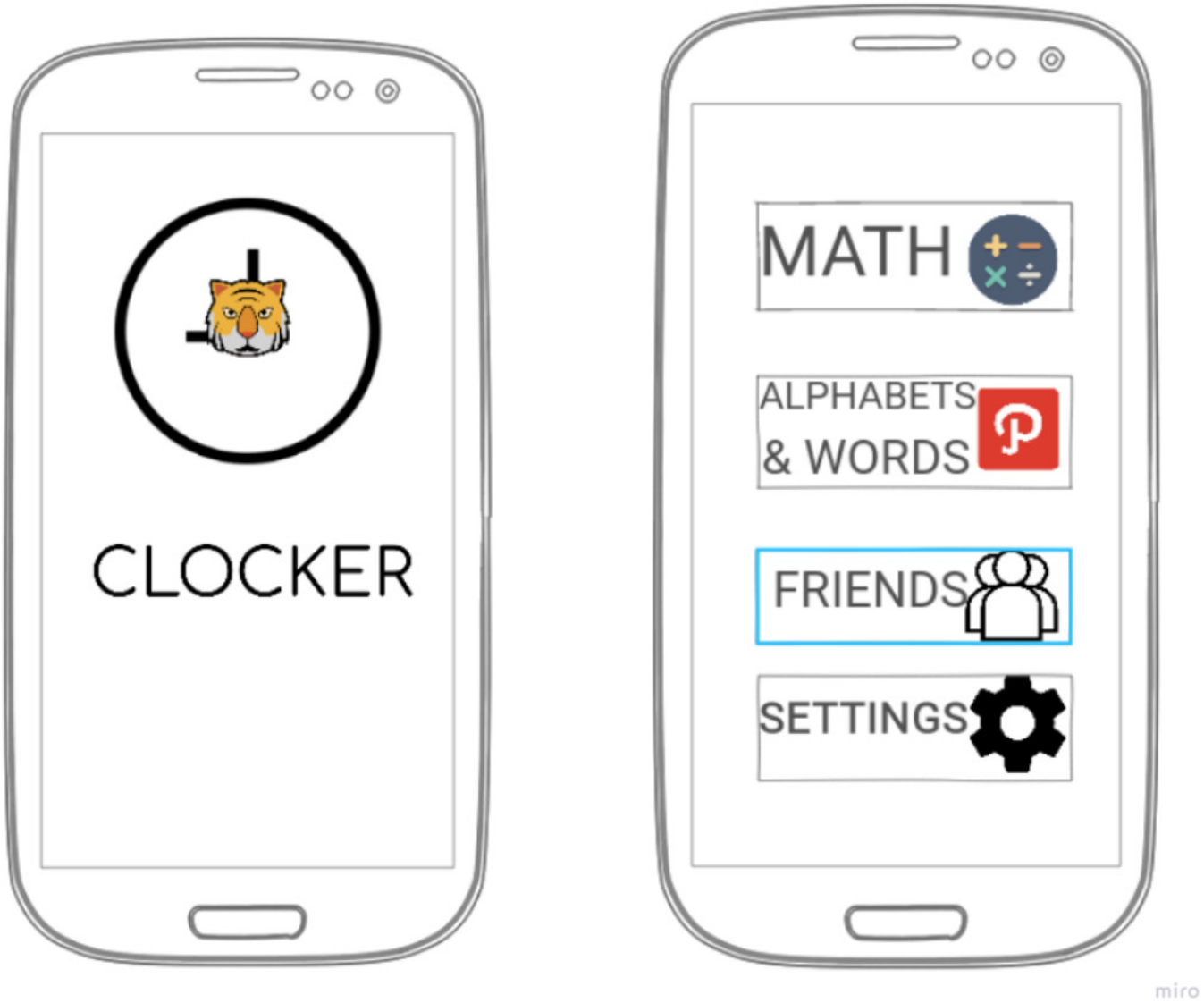
- Ability to be shared via Bluetooth and WIFI to other devices.
- The mobile application will be a one-time download, it will include users that have low bandwidth because there will be no interaction with the web server, everything is downloaded to the device, and it functions fully on the device with one download.
- Application is lightweight. This requires very small storage ( 75 MB) on the device so allowing for users that have small storage
- Tablet users are included in the solution

*Limits*:

- The mobile application solution will only be limited to cell phone devices that will not be able to be used by users on laptops or monitor.

# OVERALL DESIGN AND LAYOUT:

## Overall design.




**Four Features:**

- Math
- Alphabets & words
- Friends
- Settings

## Feature interaction.


**Interaction**
Each feature has sub-activities inside that the user is going to use further. The math feature is going to provide the user with the ability to recognize numbers and count along with simple math operations such as subtraction and addition of numbers and recognition of shape. The words and alphabets feature are going to provide the users with the basics of alphabets and words, and the friends feature is going to reconnect the math and the word & alphabets features by applying it to a cartoon where users are going to be interacting with a friend that does normal day activities that are done by the ages group of the users, and this allows the learners to apply the knowledge that they have learnt in an interactive way.

**Feature invocation**
After launching the application, all the features are displayed. After one touch click on each of the feature the following sub-activities within them.

**Math feature** ***( after one touch click of this feature)***
These sub-features have learning activities within to be done by the user.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**Alphabets & words feature** ***(after one touch click of this feature)***
These sub-features have learning activities within to be done by the user.


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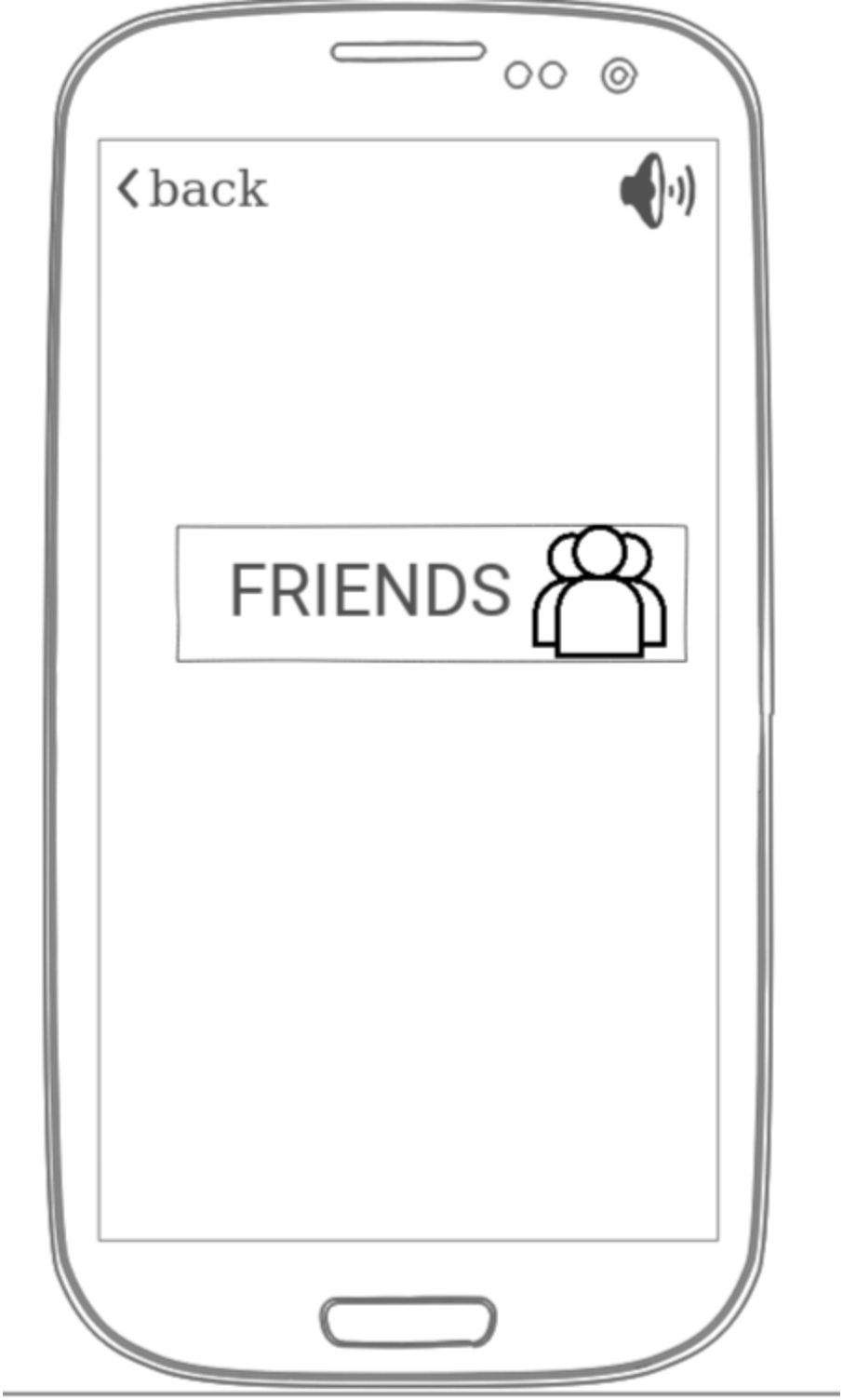
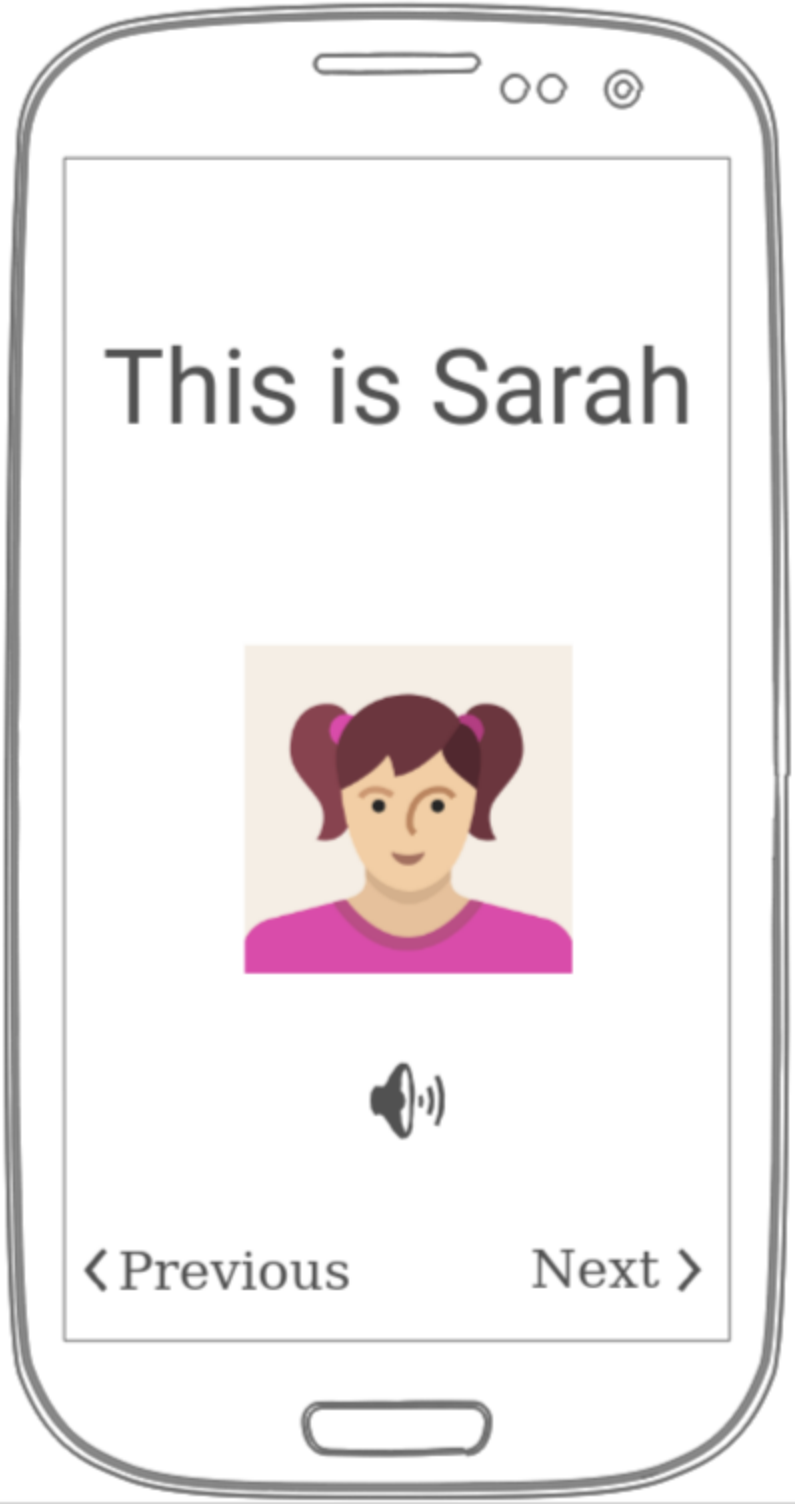
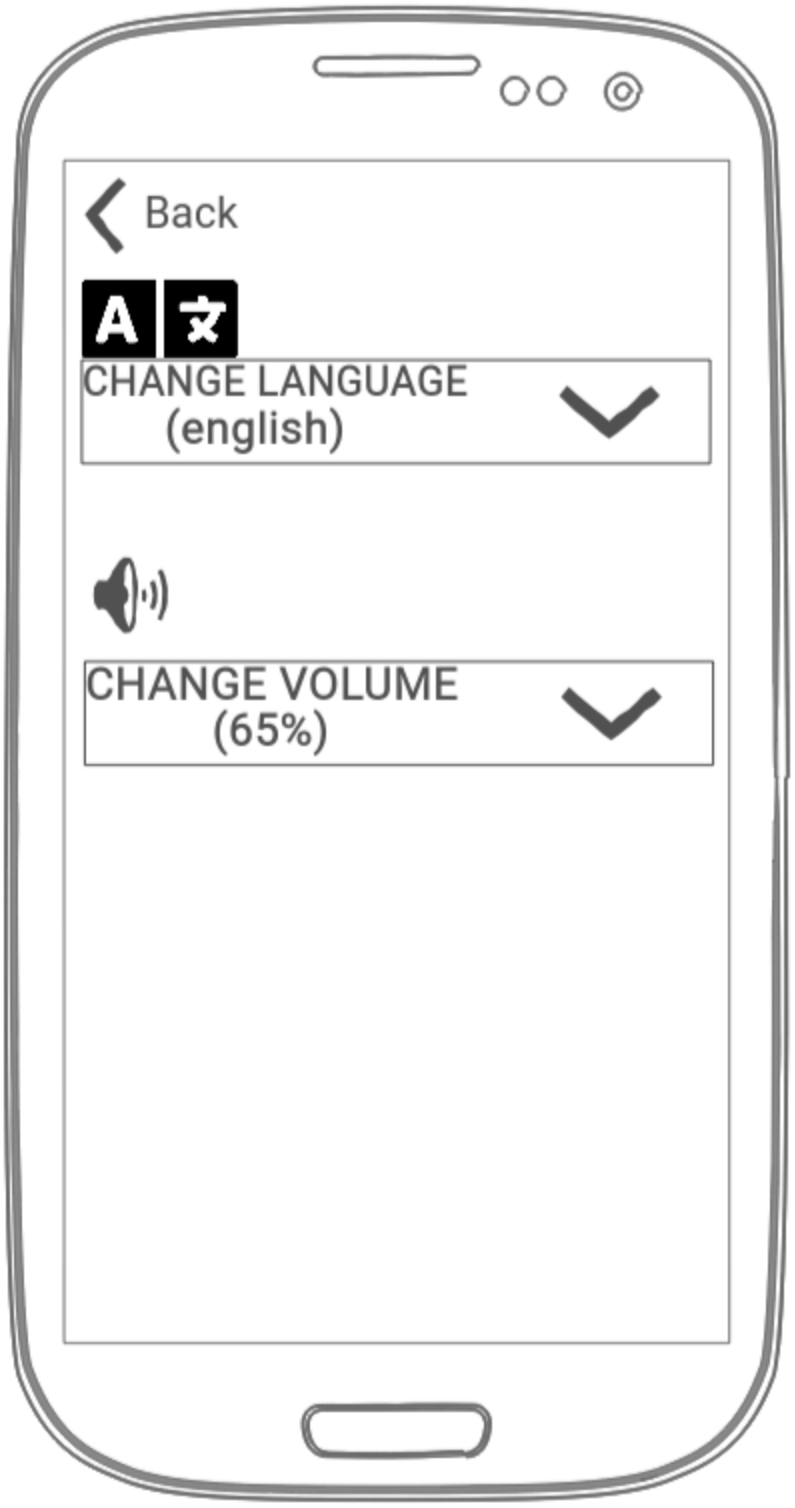
**Friends** ***(after one touch click of this feature)***
Does not have sub-features, but learning activities.


back
FRIENDS


This is Sarah
‹ Previous
Next ›

**Settings** ***(after one touch click of this feature)***

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**Target users:**
Target users will be from a multiple samples of a larger population that is spread out across the country or even outside of the country where the backgrounds of each user are different and the need differ.

**Assumptions**

- Different users might not speak the same language.
- Since there are different users that come from different backgrounds some of them are not know English well or at all, where they come from a background where they don't speak English.
- Some users might be bad at simple mathematics like counting, simple addition, and subtraction. Some of the users may have seen numbers or words or alphabets on television even when they don't know what they mean, some might not know how to say numbers, pronounce words or spell the alphabet. So, the solution will try to cover all basics so that it minimizes the margin of the users missing out.
- Different users have different learning abilities so some users might be slower paced, and others might be fast paced.

- Although the app might not teach you everything like in school it will cover most of the basics and most of the things, they will figure them out by interacting with the app and they will understand them better or when they're doing the app.
- Different users have different learning styles, including visual, auditory, kinesthetic, and reading/writing.

**Devices**

- The solution includes all the androids running from version 8 in which the devices must have been bought in 2017 or later.
- For iOS the run from devices with version 10 in which the devices must be from 2016 or later.

**Design targeting**
Considering that the user is of young age thus complex designs may confuse or make disinterest in the application, the created designs offer simplistic layers that allows the users to navigate the application seamlessly and flawlessly with ability to access all the features in an easy manner that has an effortless accessibility to the interface.

The designs offer less dense access to features on each layer of the application that allows the user to make clear decisions based on simple options that are provided on the screen. Thus, a design has four simple, eye-easy features after the opening of the application. The design is crafted in a simplistic but specific way that allows the user to access all the needed information from all the layers of the application and is seamlessly easy.

Error diagnosis is clearly expressed in plain language and sign signature to indicate the root of the error to the user.

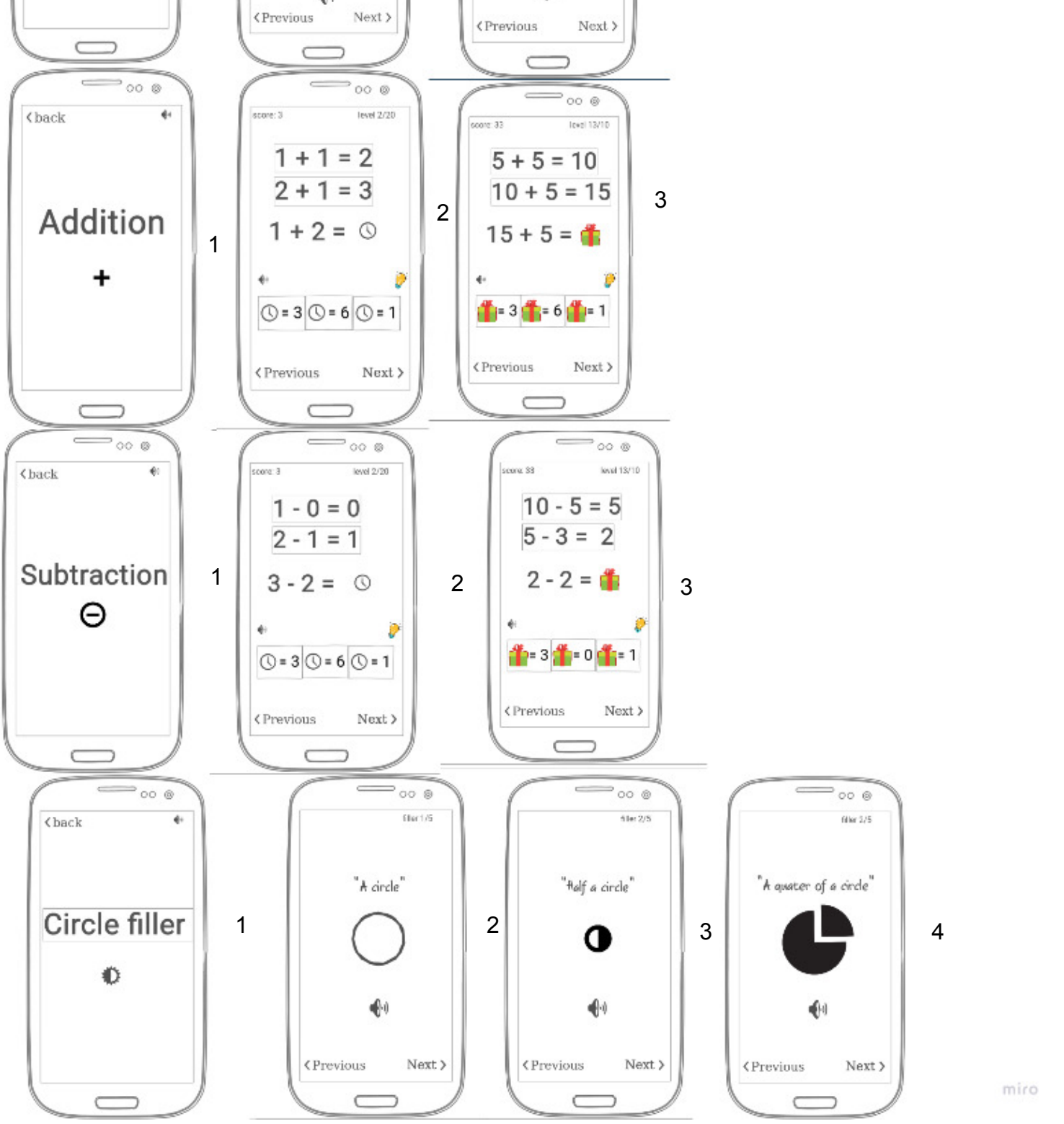
# FEATURE RATIONALE AND DESIGN

*MATH (to be marked)*
**Feature Rationale**
in this feature there is addition, counting, subtraction and circle filler sub-features, the reason for them is, users often do not have the background in simple counting or simple mathematics, and it might be overlooked or having the assumption that users already know how to say certain number that they see on the screen or know how to count certain objects.

The goal of this feature is for users to understand numbers allowing them to be, familiar with numbers so that they will be able to recognize them on the clock and users should be able to do simple addition so that they can quickly and effortlessly be able to add up certain minutes or hours and understand that they form a particular meaning with regards to clock time. For example, if you add 3 fives' then it equals 15 and on certain regions of the clock it regarded as a quarter, so they'll be able to use subtraction. The circle filler is for users to be able to identify quarter past, quarter to, half past and o'clock but in a visual manner that they don't have to understand numbers for this but this will be able to quickly help them identify where the clock is, for example, if the clock is at quarter past they will be able to see that the clock is somewhat at quarter even though they don't know what it means because they will learn that at a later stage where they learn numbers and words combined.

The experience that led me to this feature is that mathematics is fundamental to understanding clocks operation and a visual representation of a clock is fundamental with regards to quickly identifying where the clock is and being able to articulate time without having to think about it hard.

**Design**




**Design rationale**

The use of big sign icons that represent mathematical operations in the first screen (after application launch) shows the sub-features, *counting*, *addition*, *subtractions* and *circle filler* that indicates the type of activities that will be happening within those sub features.

It office visibility of the features state is giving the users appropriate feedback about what is happening and the design supports the user control and freedom and thus allowing the users to be able to refer to any mistakes that were made and exit points so that they are able to revert back before the mistake and try again. This is because often when you do mathematics or any math operation you can make simple mistakes or maybe for example you have swapped mathematics signs, or you have pressed the wrong number, or you have selected the wrong answer, so you are able to move back and fix your mistakes.

The design offers aesthetic and minimalist design. It only shows the relevant information while diminishing every extra element that is not relevant. This is because when visualizing numbers or objects that have any mathematical shape or doing math operations having a hierarchy of levels clearly gives you a simple overview of what needs to be done, for example when you are given examples and given an operation to perform afterwards, it should be in a layered manner that allows you to simply see what is required and what is not required without any extra information that disturbs you from performing that assignment.

The design is made simply and clearly visible at the appropriate time allowing recognition over recall by the user in a way that minimizes the memory load of the user to facilitate decisions. When you up doing a certain task on the you should have a feel of how everything is supposed to work without even trying to use the application for a long time and this is what this design offers by allowing you to see what needs to be done in a very simplistic manner that shows you where to go without having you to think about it or look forward.

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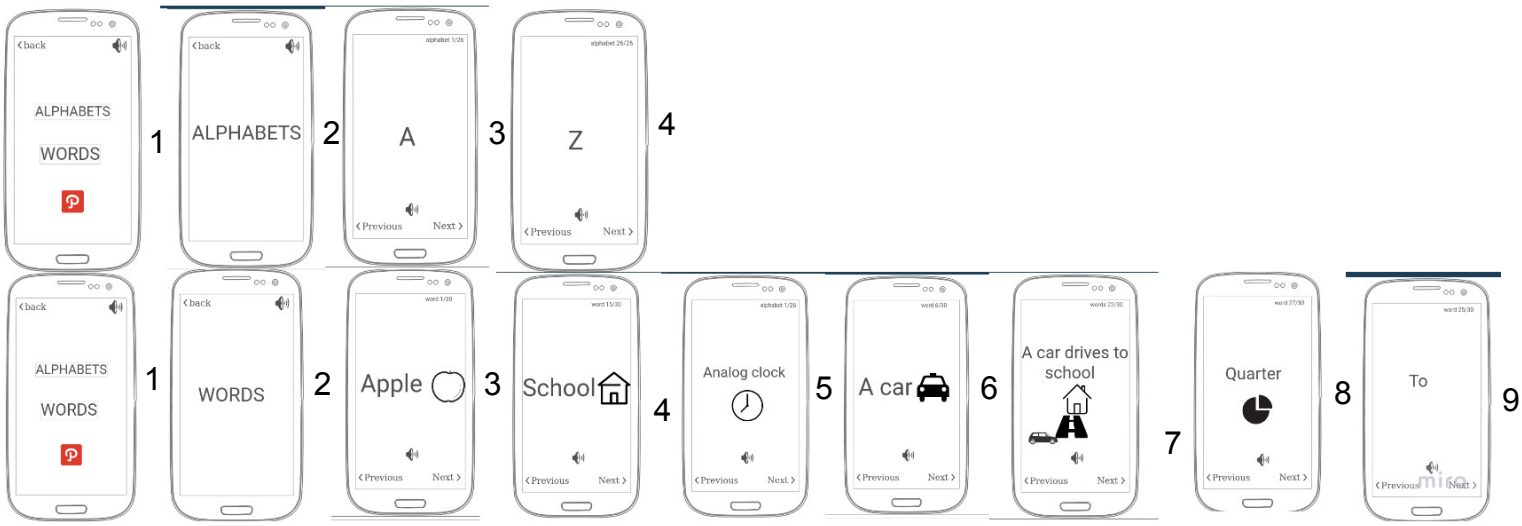
ALPHABETS & WORDS *(to be marked)*

**Feature Rationale**

The use of learning words and alphabets and how to say them is often overlooked but students or users often don't know how to say certain with regards to time and how it should be said, so this feature is going to help with being familiar with saying certain words that are related to learning of time. I often hear young children trying to say time but in the wrong manner is such that they have pronunciation mistakes because they often don't know how to recognize certain letters or words or be able to spell or pronounce words in a manner that is clear, simple and articulate.

**Design**




**Design rationale**

Design has flexibility and efficiency of use which shows clearly the path that must be taken to achieve a certain result and the progress status that is has already been made and the percentage of the progress that must be made in order to reach the final and is clearly visible. Allowing the users to be able to see how much they have come across achieving a certain task or that they are a few blocks away from completing certain tasks allow the user to have a clear understanding of the path they have taken or how long it's supposed to take and also allows them to relax because they can also adjust use of the application along with progress reflected.

Throughout the design there is help and documentation which is translated by a a hint lightbulb that helps accommodated the user in times of difficulty or misunderstanding of everything that has been asked despite minimizing the margins of any confusion in the US during the clear path of what needs to be done on that layer. After a feature has been clicked there is a speaker icon placed above in order to explain what will be done within that feature, even however as much as the margin of not understanding what it is presented on the screen is minimized to a certain degree there will still be some time where users will not get understanding of what they should do this could be due to different reasons like learning capacity or learning disorders so a hint that gives a very simple clue or gives an answer to a certain task or path is provided to accommodate all users.

The design follows consistency and standards that are already out and has not altered any standard. The progress status is represented in a manner that is a fraction and the switching between previous and the next tasks or events is represented in a manner that shows with signs that point towards the side of the screen that the app will swap/scroll to.

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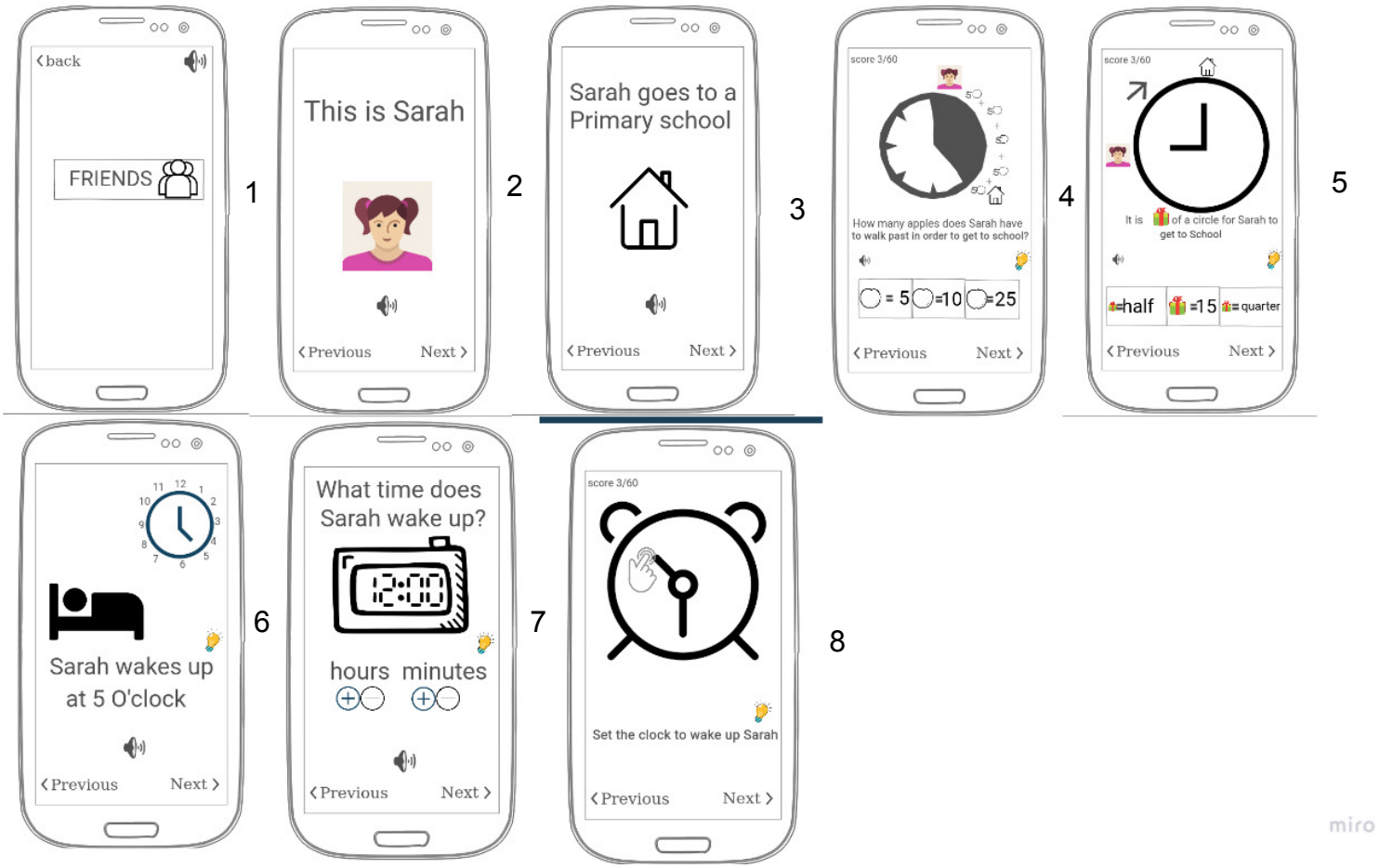
*FRIENDS (to be marked)*

**Feature Rationale**

this feature is used to apply everything that has been learnt in the math, alphabet and words features and it makes use of attaching or reconnecting the user to the real world where the user will have a simple digital friend that will do normal activities that the users age group do, for example, going to school, waking up and being with friends or being with family but will teach the user in a way that the user will be able to relate to the real world such as waking up is in the morning or sleeping is late at night or having dinner at a certain time but at the same time the user will be learning time intensively without noticing, such as waking up in the morning at 6 a.m. This gives the user interactive play but the user will be able to enjoy because they will be thinking that this is just a game but subconsciously they'll be learning time (both analog and digital) such as that the morning is actually in the a.m. region of time and the evening is in the p.m. at times they will be given  brief a story go and they will be asked to perform certain tasks that will ask the users the perform time related tasks relating to the story. Often users or young children are often left with information such as what time is and the words relating to time but are not being taught how to relate to the real world or how to apply it.

**Design**




**Design rationale**

The application affordance is taken to a high standard where rearrangement of buttons or colors are used to articulate what needs to be clicked/done or assigned priority so that any confusion is minimized to a very low degree and leaving the user with very good understanding of navigating the application effortlessly. Throughout the application there is an order that is used to relay information to the user such that it makes sense and for example, in some of the instances the user must get a story from the application before questions are asked about that story that has been delivered.

Mapping of the design is clearly shown with shapes and words in order to articulate in various ways to the user what it means. In the briefing of the story, time is taught in an analogue and digital form, to reach the goal of the application. In order to minimize the dislike of a particular watch by the user, many different stories are delivered to the user and different tasks are given to the user that require the user to use various interactions with relation to time and in some instances, there is no mention of time just to get the user's mind to easy up and relax, but keeping them interested.