



Thank
you!



Objective

- The objective of the game is to collect all the tiles and reach the level on android devices.
- The user can collect the tiles by merging them.
- The user can merge the tiles in any direction.
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Motivation

- > A Large potential audience for android games and ease of play using sensor devices make android game development using sensor device a very attractive prospect.
- > Number Games are always fun to play with. Not only they are entertaining but also helps in developing intellectual ability of the users.

CS5590BD-Project

2048Game

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Why 2048 Game?

- > 2048 is a single player puzzle game which is highly popular among the android pool.
- > The idea is to move or slide the tiles with numbers on a grid to sum them up and create a tile which makes up to 2048.
- > 2048 is a "Simple but hard to win" type game.
- > It is possible to show all the four gestures i.e., top, down, left and right

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Objective

- > To develop 2048game which is compatible on an android device and can be navigated using the sensor tag
- > To collect the data (i.e.) text file from an android device, this file mainly contains the number of gestures in a particular day in which a user is playing.
- > Then we need to push this file to the hadoop file system and we analyze this data to generate report and also we will provide recommendations to user to improvise them in their field of interest.

Development Tools

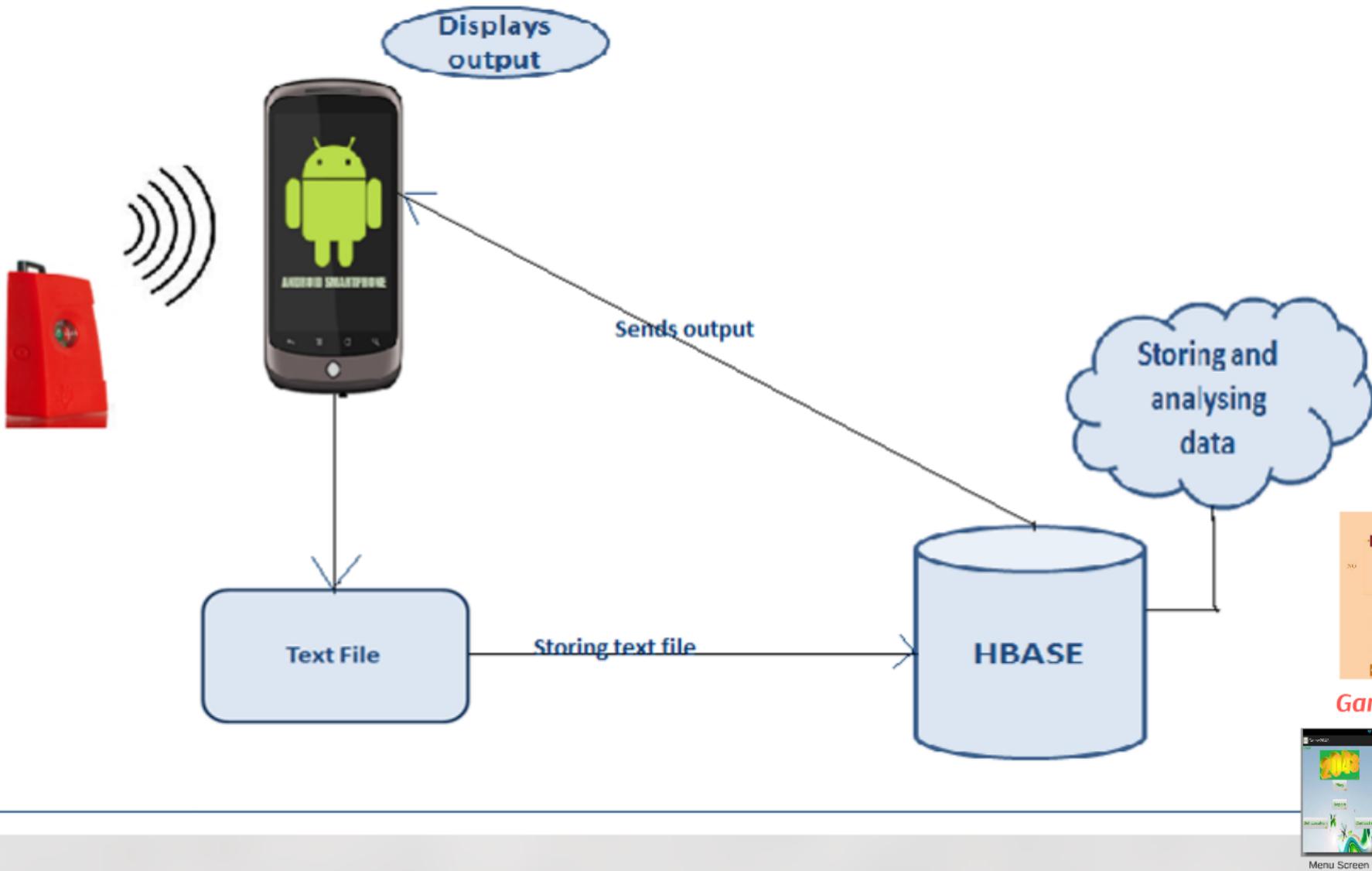


CC2541 SensorTag Development Kit

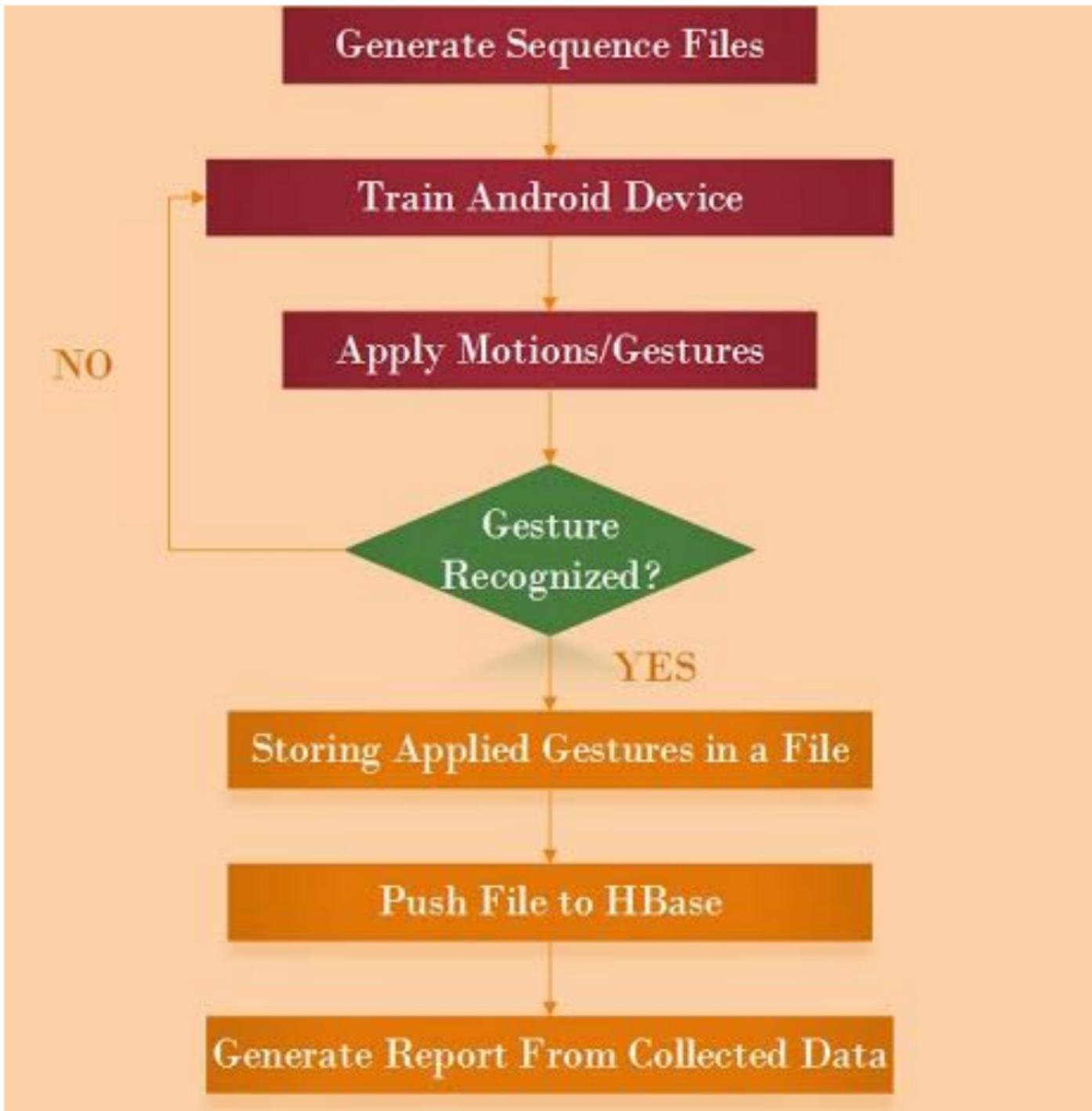


Android device enabled with
Bluetooth

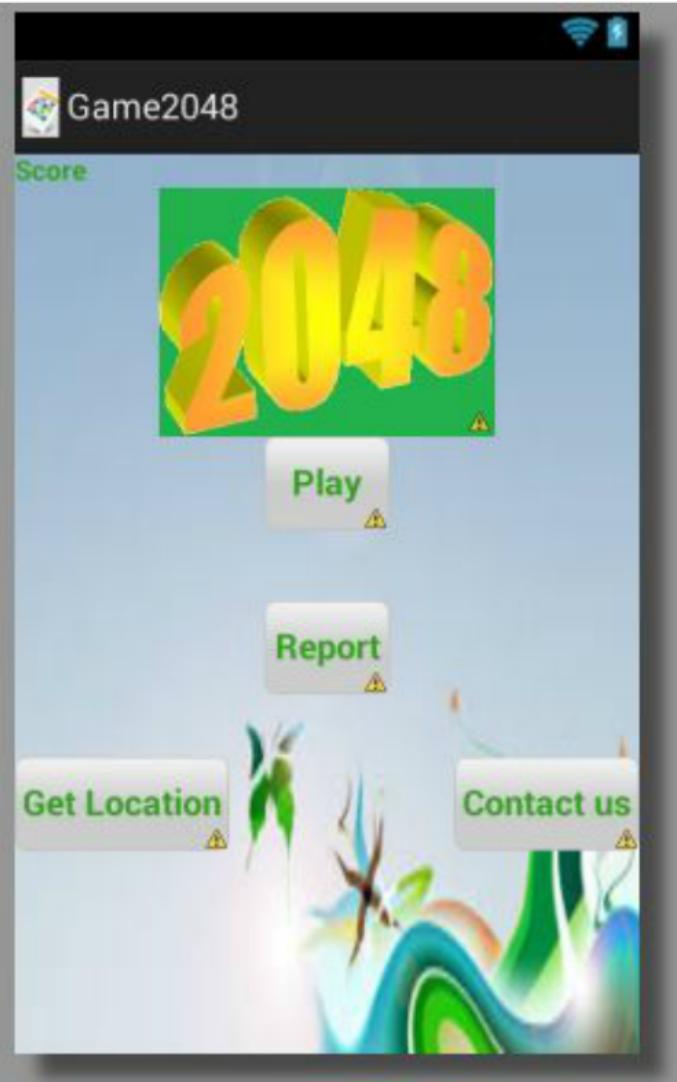
Activity Model



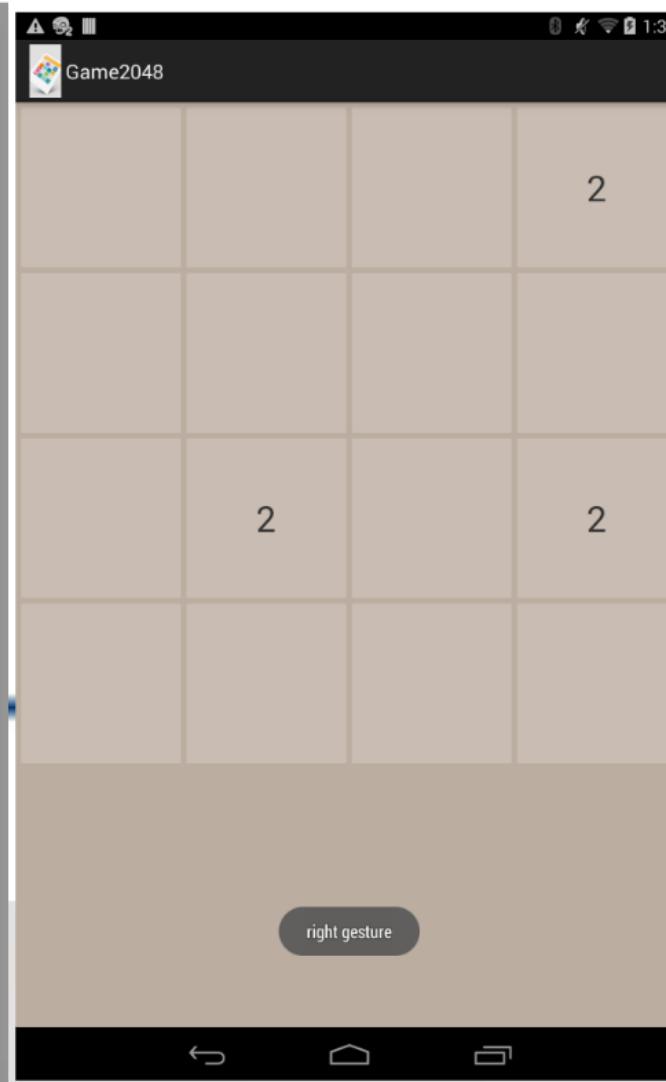
Flowchart



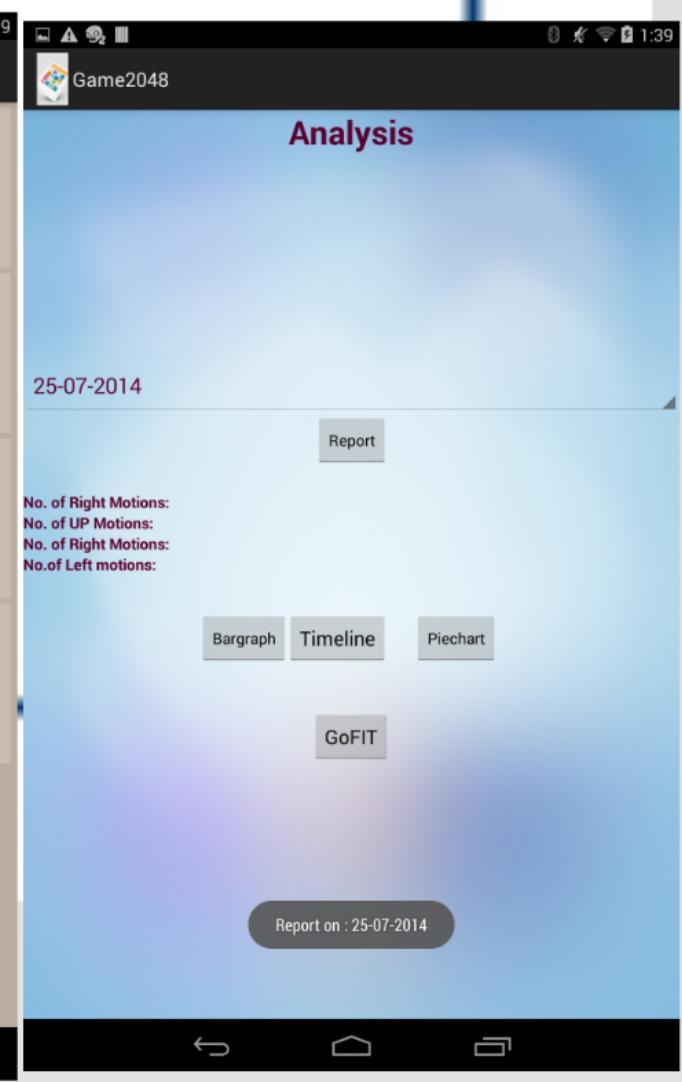
Game Overview



Menu Screen

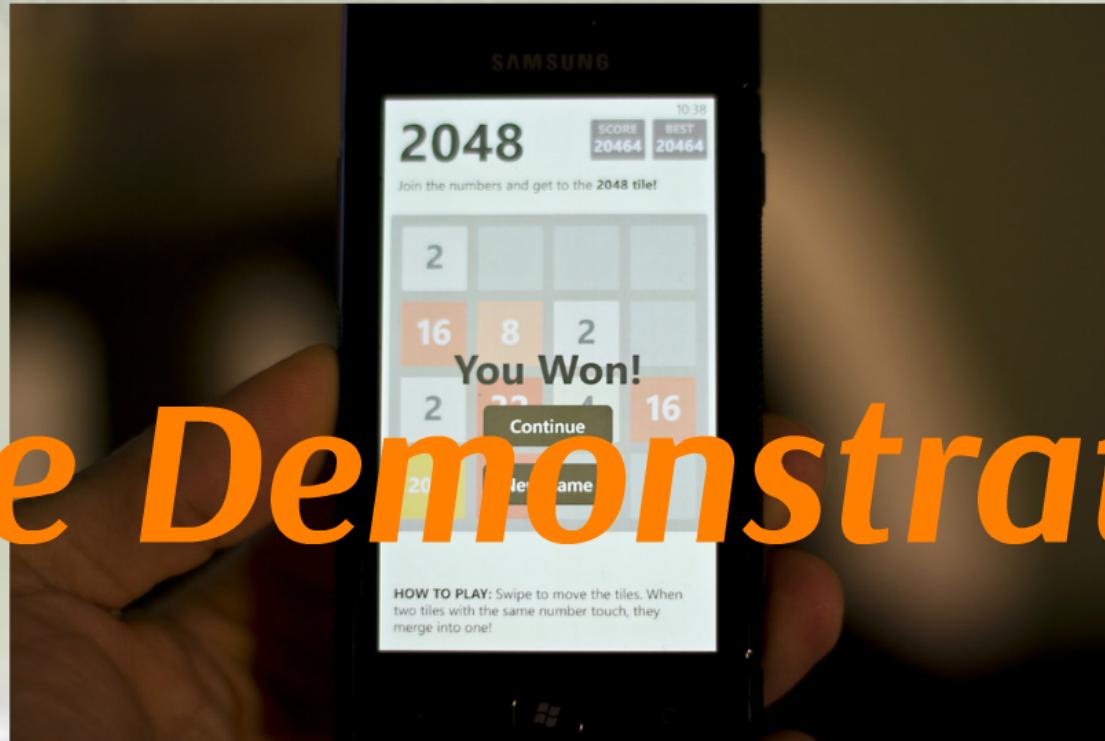


Game Play Screen



Report

Game Demonstration



2048

Algorithms

> Data Filtering:

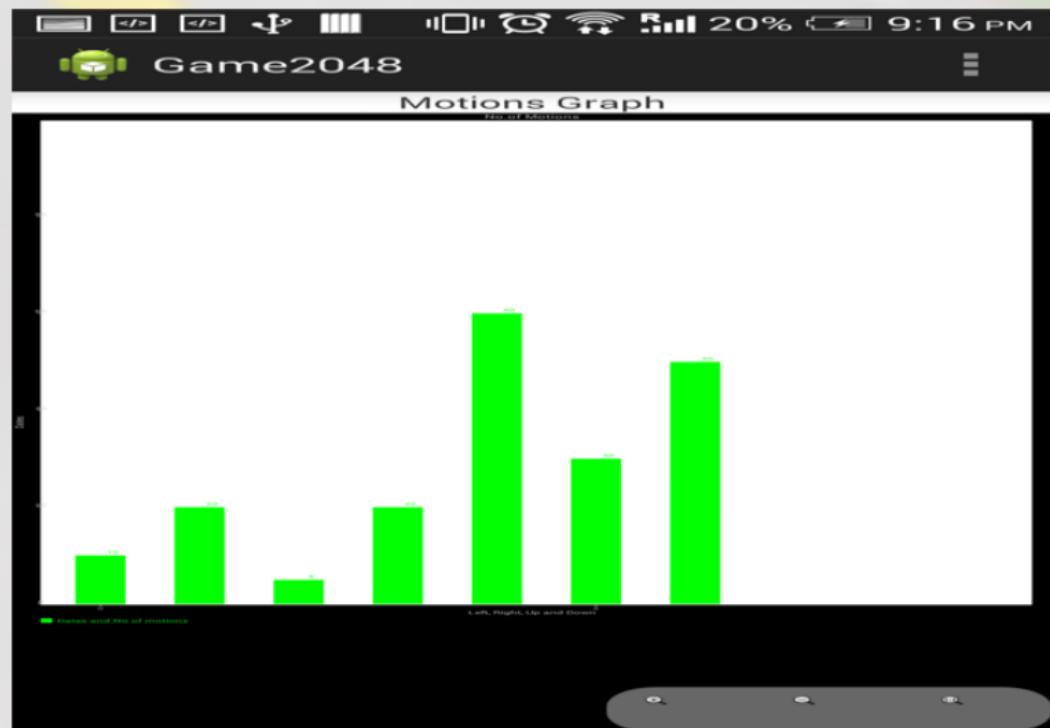
In the filtering part, the data collected from the game is filtered by specifying start and end positions for the gesture. The similar way is followed for remaining gesture actions. The data collected is extracted based on K-means clustering Algorithm.

> Evaluation model:

The machine learning algorithm we are going to use is by HMM Model. Here the probabilities are calculated and based on that the correct gesture is determined

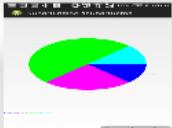
Evaluation

Bar Graph: Upon selecting a particular day and clicking on “Bar Graph button”, the corresponding day’s graph will be displayed with X-axis with respect to particular time of a date and Y- axis plotting the number of motions corresponding to the gestures the user performs using the sensor tag.



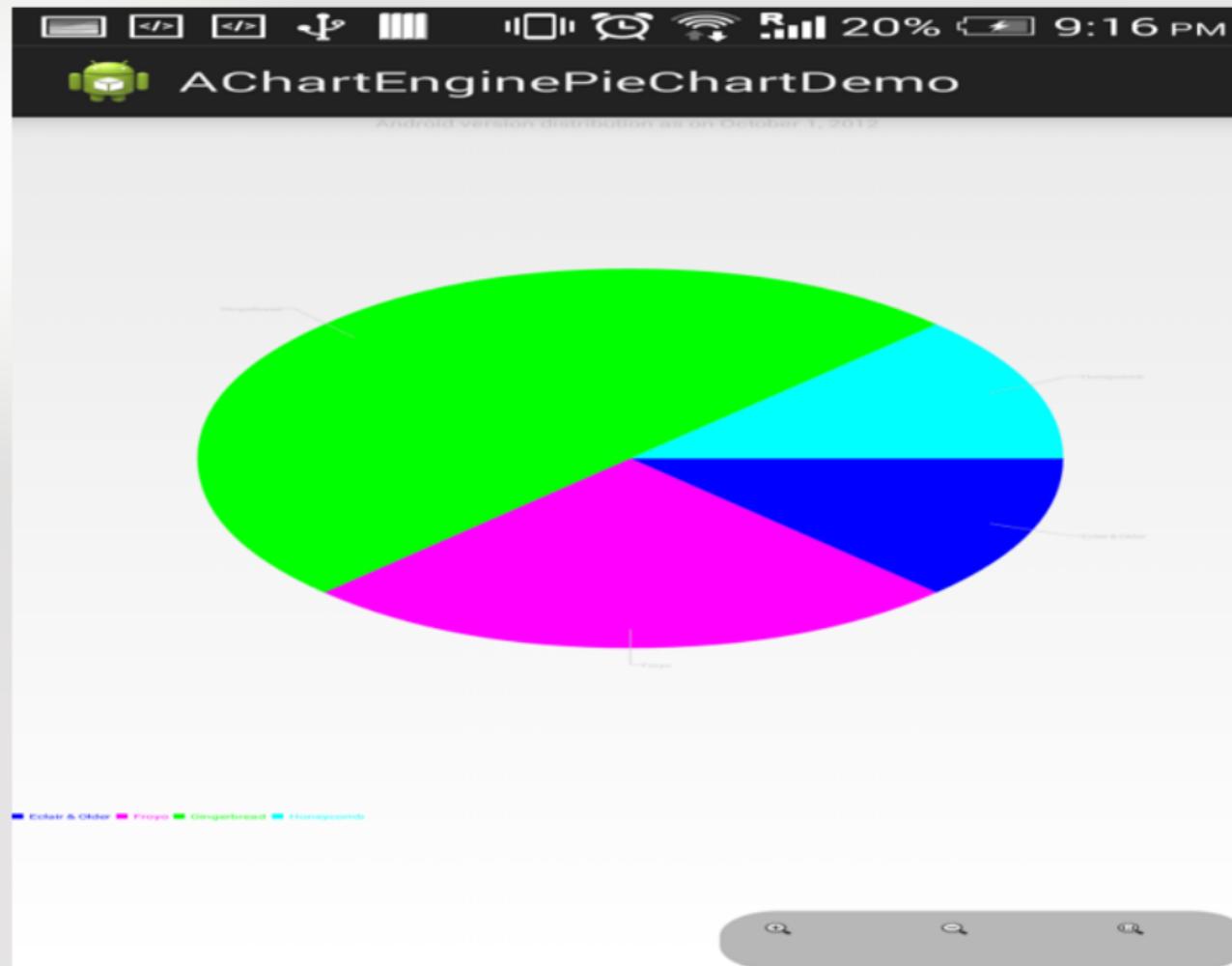
Piechart

When the user selects a particular day and clicks on the 'Pie Chart' button, a pie chart displaying the percentages of each of the four gestures as below:



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Confusion Matrix

	Left	Right	Top	Bottom	Punch	Total
Left	15	5	0	0	0	20
Right	3	17		0	0	20
Top	0	0	19	1	0	20
Bottom	0	0	2	18	0	20
Punch	1	2	1	1	15	20
Total	19	24	22	20	15	

	Recall	Precision	F-Measure
Left	0.75	0.79	0.77
Right	0.85	0.71	0.78
Top	0.95	0.86	0.91
Bottom	0.9	0.9	0.9
Punch	0.75	1	0.86

Scope & Limitations

- > Open Ended Game (Scores get higher higher & Higher)
- > Simple Gameplay mechanic
- > Competitive
- > Provides an addictive experience, that will enhance logical and critical thinking of users.

But,

- > Accuracy percentage varies depending on gestures
- > Improper Gestures would be hard to recognize

Future Work

We would provide the users with a wide range of diet list to choose from making the application resourceful.

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