Table of Contents

Scientific Calculator

Introduction:

This app “Scientific Calculator” is basically designed to help the students of any stream and any branch to do basic and advanced mathematical calculations faster.

User Manual :

This section tell the users how to use the “Scientific Calculator App”.

Home Screen for the App

On launch, home screen shows up which contains two options :

1. Calculator
2. Interest Calculator

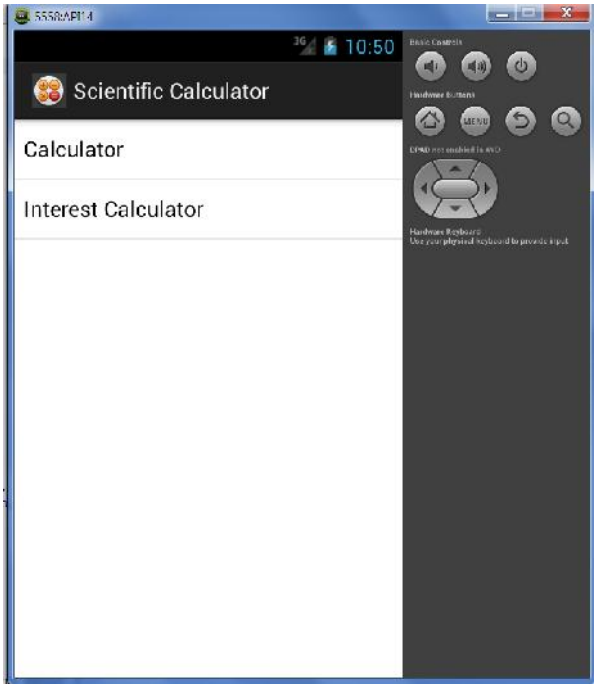

Fig. Home Screen of the App

In the menu option there is “About” which gives the basic information about the app and the developer.

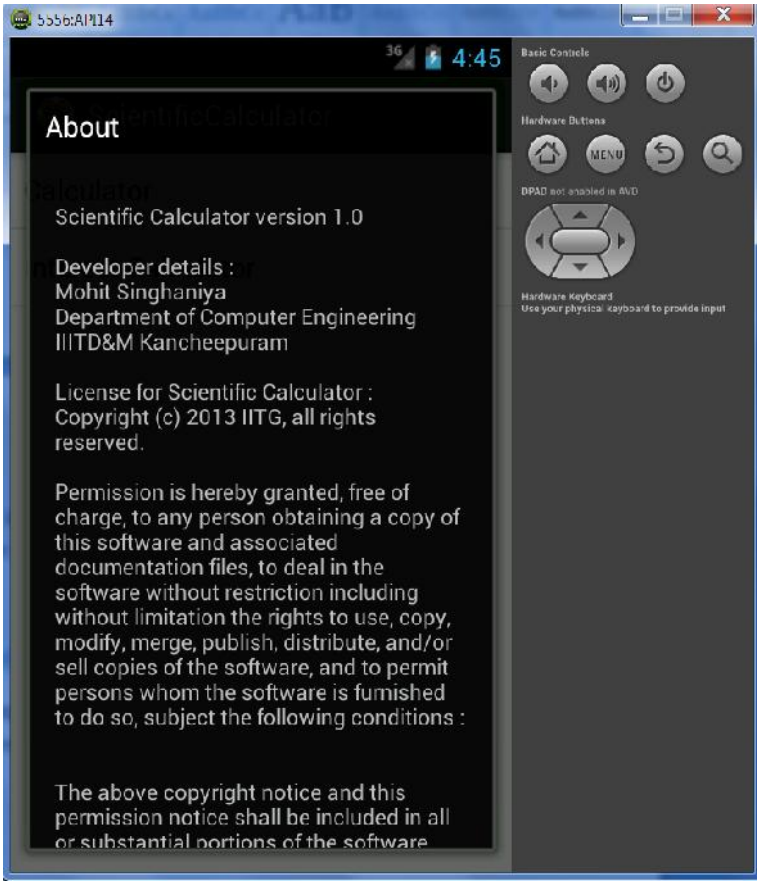

Fig. "About" option on pressing the menu button

Calculator :

On launch, home screen appears which contains three buttons which on pressing different functions can be obtained.

1. Basic

2. Adv

3. Other

Basic :

This screen can be used to perform basic arithmetic operations such as addition, subtraction, division, multiplication and any operation involving the operators +, -, x, /, (,)

The "▼" key can be used to see the previous calculations. The calculations from the Other mode can also be viewed under this option.

The "←" key can be used to delete one operator or one digit of an expression at a time. It works as a backspace basically.

The "C" button clears the screen.

In the menu option there is "Clear History" option which can be used for deleting all the previous calculations.

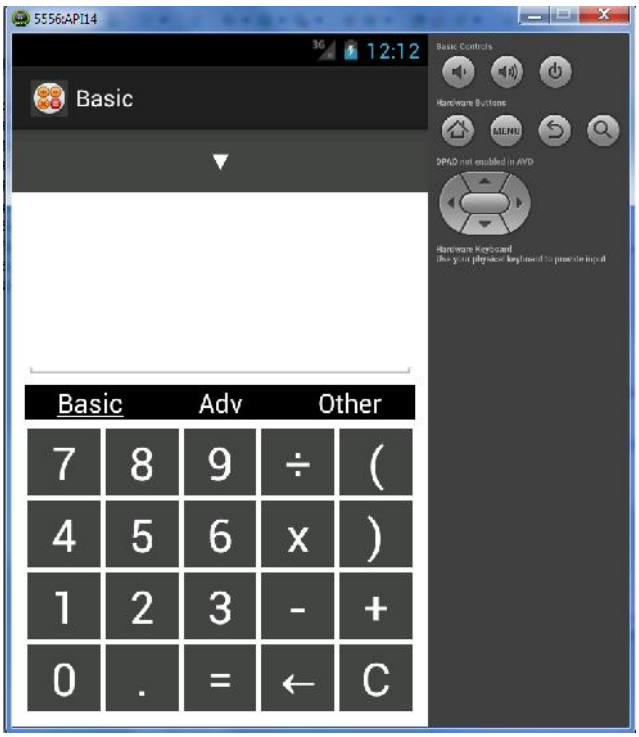

Fig. Basic mode

Advance (Adv) :

This screen can be used along with the basic mode and different combinations of the operators can be used to get the desired results.

MC is used for clearing the memory.

MR is used for memory read operation.

MS is used for storing a number in memory.

M+ is used for adding the value on the screen to the memory value.

M- is used for subtracting the value on the screen from the memory value.

The buttons are labelled by the name of the operation they perform. For e.g. the “sin” button is used for finding the sin of a number.

In the menu option there is “Clear History” option which can be used for deleting all the previous calculations.

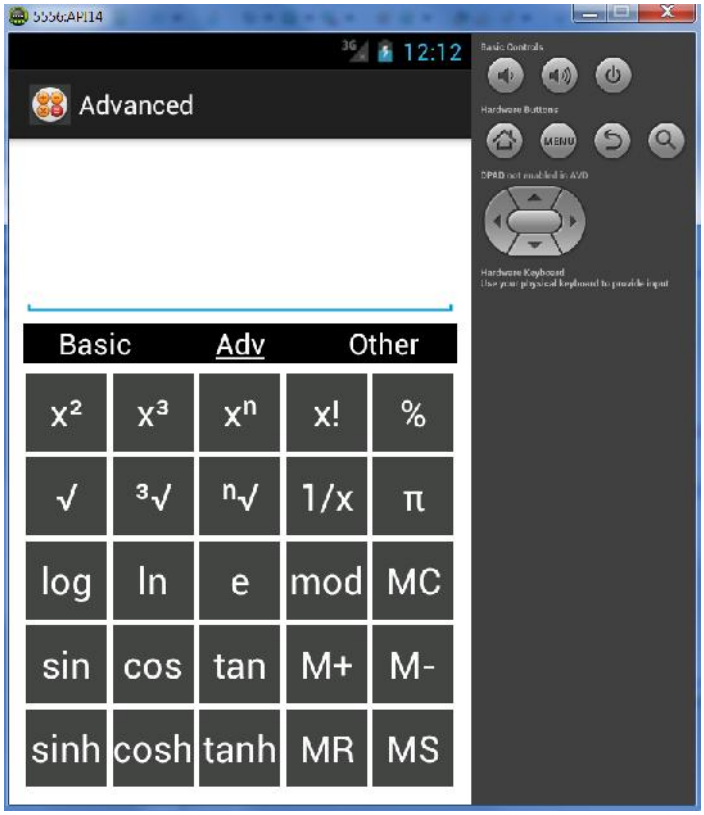

Fig. Adv mode

A working model of basic together with the adv mode :

For performing the operation shown in the screen of the Smartphone :

Press the button labelled as “1” “+” “2” “x” “3” “-“ respectively.

After that move to Adv mode by pressing the Adv button.

Press the button labelled as “sin” “log” and then return to basic mode by pressing the “Basic” mode button.

Press “1” “0” “0” “)” “)” “+” “2” and move to “Adv” mode again and press the “**x^n”** button.

Return to the “Basic” mode and press “5” “)” respectively.

Finally press the “=” button to see the answer.

Fig. Operators from both Basic and Adv mode

Other :

This screen is separated from the Basic" and "Adv" mode and works separately (not in combination with Basic and Adv mode). It can be used to perform all the operations that are written on the button of the screen.

Hypo button is used to find the hypotenuse of a triangle.

Rand button gives a randomly generated number between 0 and the input number.

The "▼" key can be used to see the previous calculations. The calculations from the Basic and Adv mode can also be viewed under this option.

In the menu option there is "Clear History" option which can be used for deleting all the previous calculations.

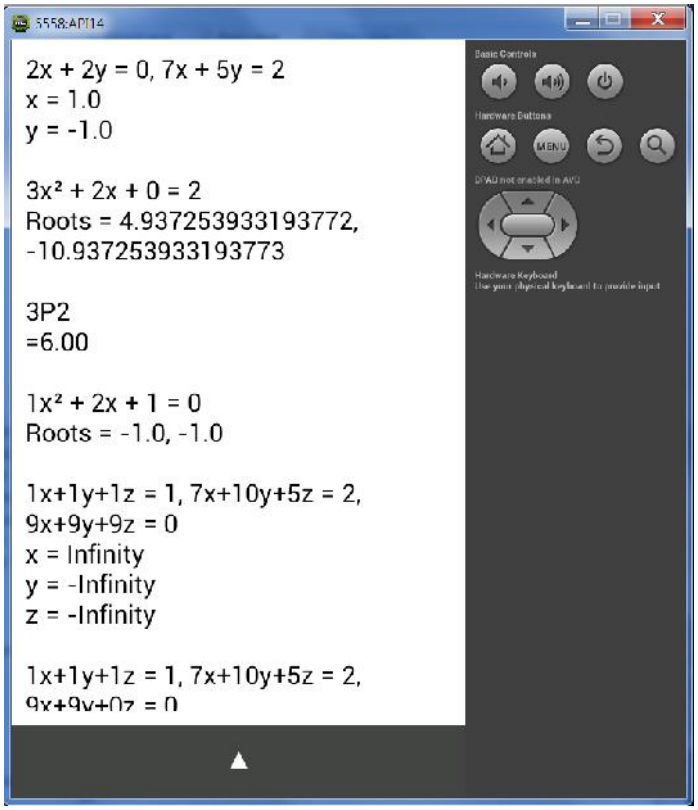

Fig. Previous calculations on pressing "▼" button

Working of Other mode :

1. For finding two unknowns (x, y) of the equations (ax + by = e, cx + dy = f) use the “2 Unknown” button.

After pressing the button enter the values for each variable separated by commas (For entering “,” press the button labelled as “,”) and after entering the final value press the equal (“=”) button to get the answer.

Fig. For “2 Unknown” button operation

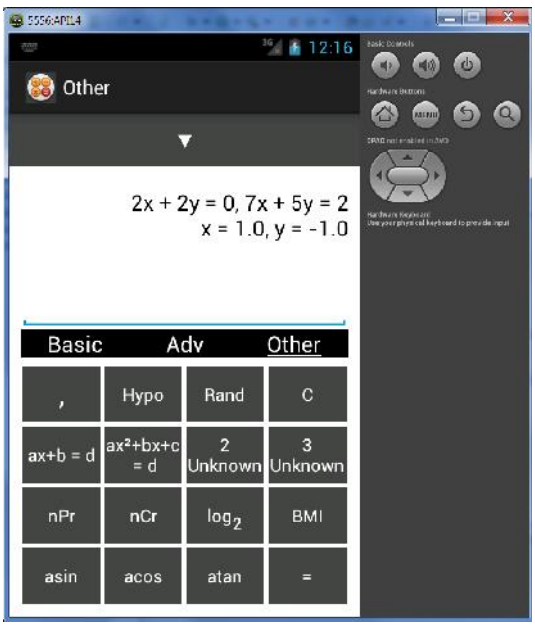

Fig. After pressing “=” for the adj. fig

2.For finding the two roots of the equations ($ax^2 + bx + c = d$) use the

“$ax^2 + bx + c = d$” button.

After pressing the button enter the values for each variable separated by commas (For entering “,” press the button labelled as “,”) and after entering the final value press the equal (“=”) button to get the answer.

Fig. For "ax² + bx + c = d" button operation

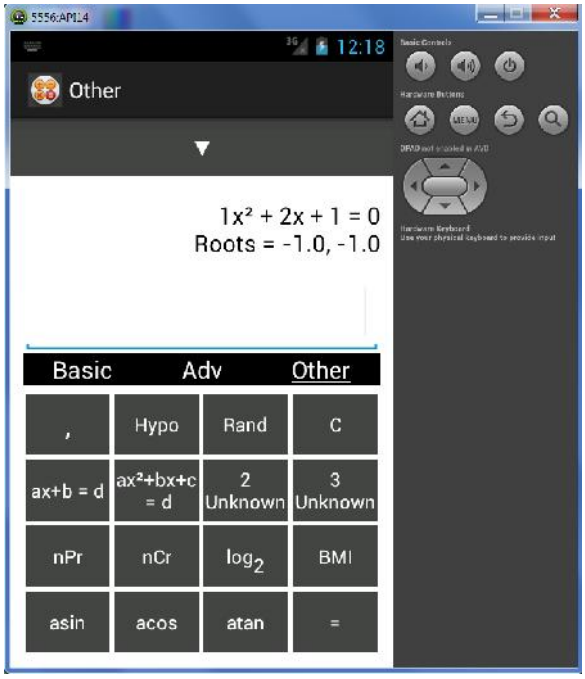

Fig. After pressing "=" for the adj. fig

3.For finding three unknowns (x, y, z) of the equations (ax + by + cz = e, ex + fy + gz = h, px + qy + rz = s) use the "3 Unknown" button.

After pressing the button enter the values for each variable separated by commas (For entering "," press the button labelled as ",") and after entering the final value press the equal ("=") button to get the answer.

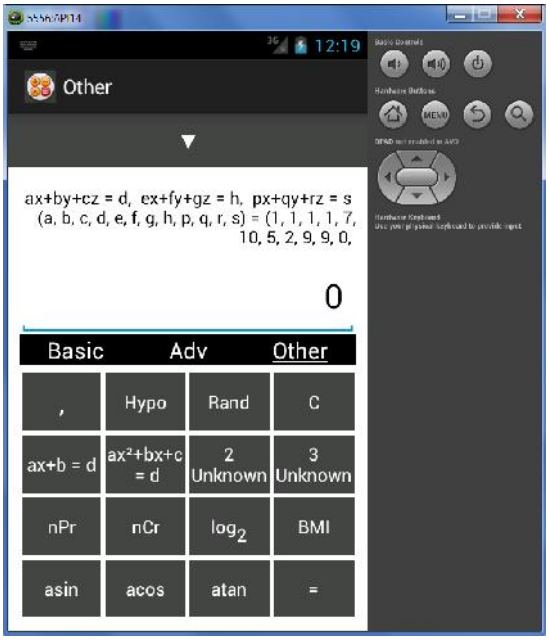

Fig. For "3 Unknown" button operation

Fig. After pressing "=" for the adj. fig

4. For finding no. of permutations use the “nPr” button.

After pressing the button enter the values for each variable separated by commas (For entering “,” press the button labelled as “,”) and after entering the final value press the equal (“=”) button to get the answer

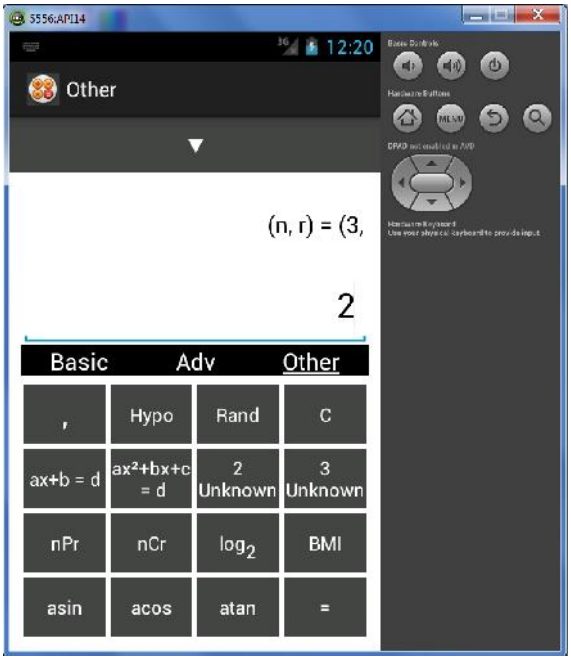

Fig. For “nPr” button operation

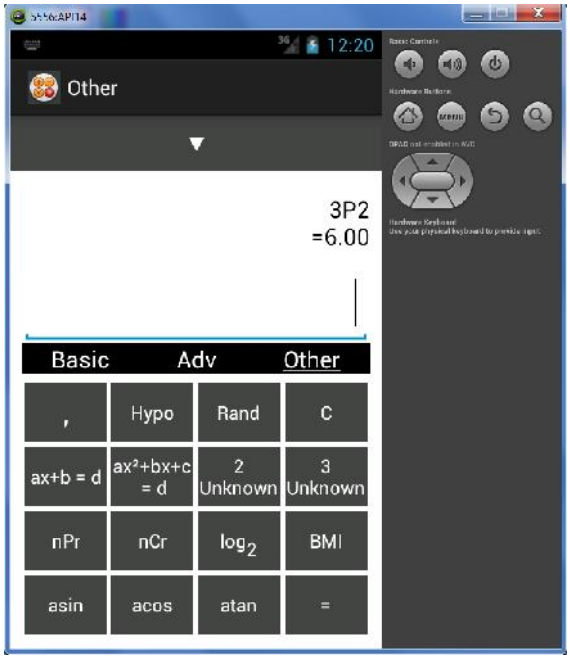

Fig. After pressing “=” for the adj. fig

In the similar way, other operations of the “Other mode” can be done.

Interest Calculator

Introduction :

This app “Interest Calculator” is basically designed to help people to calculate Simple and Compound Interest for a given principle, rate and a certain period of time. The difference between the Simple and Compound Interest can also be obtained through this App.

Home Screen :

On launch, home screen appears which contains four buttons which on pressing different functions can be obtained.

1. SI

2. CI

3. CI - SI

4. CI

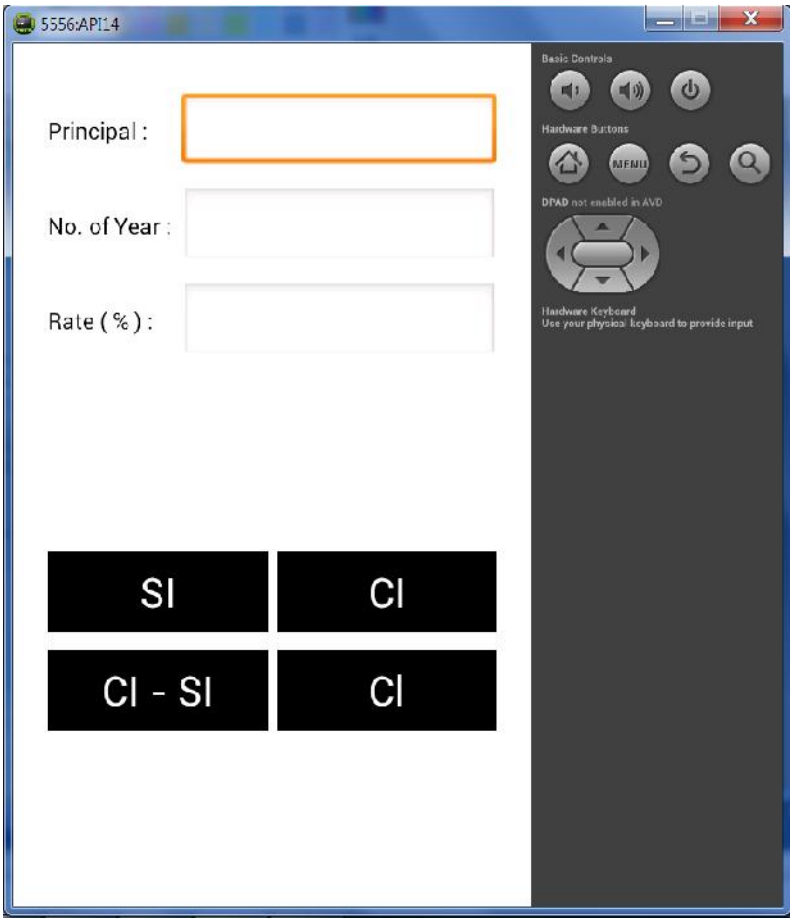

Fig. Home Screen for Interest Calculator

SI (Simple Interest) :

After entering all the values in the required fields (principle, no. of year, rate) pressing this button gives the Simple Interest.

CI (Compound Interest) :

After entering all the values in the required fields (principle, no. of year, rate) pressing this button gives the Compound Interest.

CI - SI :

After entering all the values in the required fields (principle, no. of year, rate) pressing this button gives the difference between the Compound Interest and the Simple Interest.

Cl :

This button clears the screen.

A working model of the Interest Calculator is explained :

Enter the Principal amount in the input box labelled as “Principal”.

Enter the n (no. of year) in the input box labelled as “No. of Year”.

Enter the r (rate %) in the input box labelled as “Rate (%)”.

Press the SI button to get the Simple Interest.

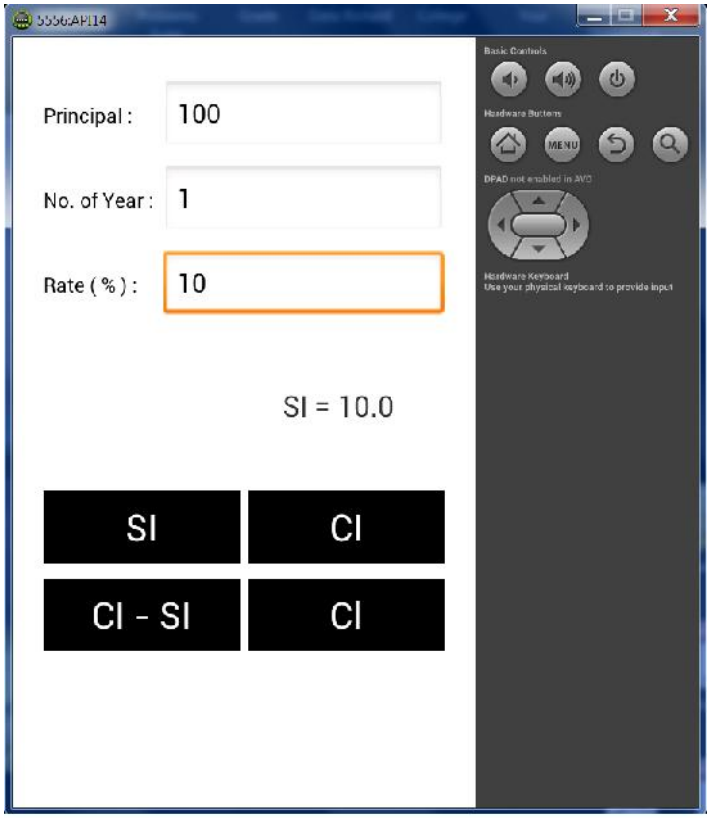

Fig. Simple Interest when (p, n, r) = (100, 1, 10)

Unit Converter

Introduction:

This app “Unit Converter” is basically designed to help the students of any stream and any branch to convert from one unit to another unit faster.

User Manual :

This section tell the users how to use the “Unit Converter App”.

Home Screen :

On launch, home screen appears which contains three spinners which on pressing different functions can be obtained.

1. Labelled as “Type”

2. Labelled as “From”

3. Labelled as “To”

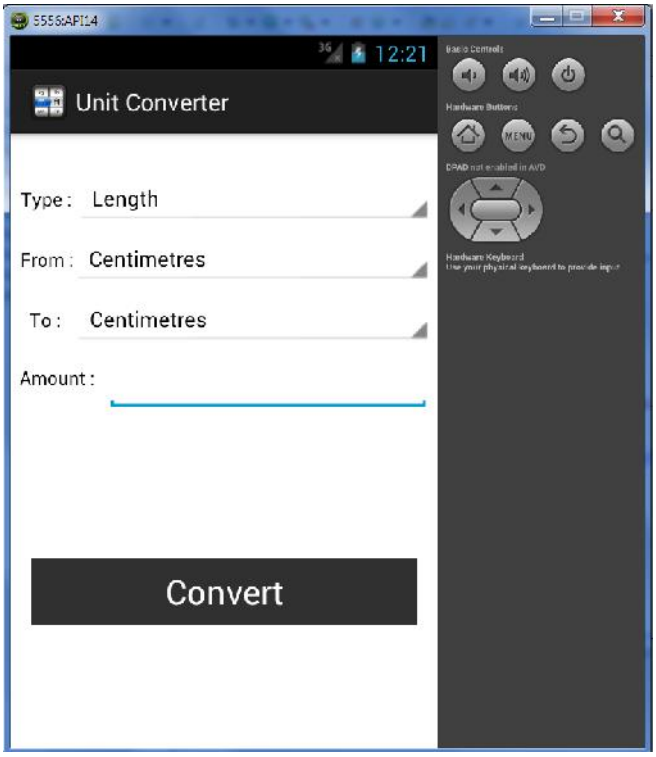

Fig. Home Screen for the Unit Converter

In the menu option there is “About” which gives the basic information about the app and the developer.

Type :

This button can be used to select the type of the unit. The app supports the following types : Length, Mass, Power, Pressure, Temperature, Time, Velocity, Volume, Area, Fuel Conversion, Digital Storage, Number System, Angle.

On changing the Type the “from” and the “to” spinner also changes accordingly.

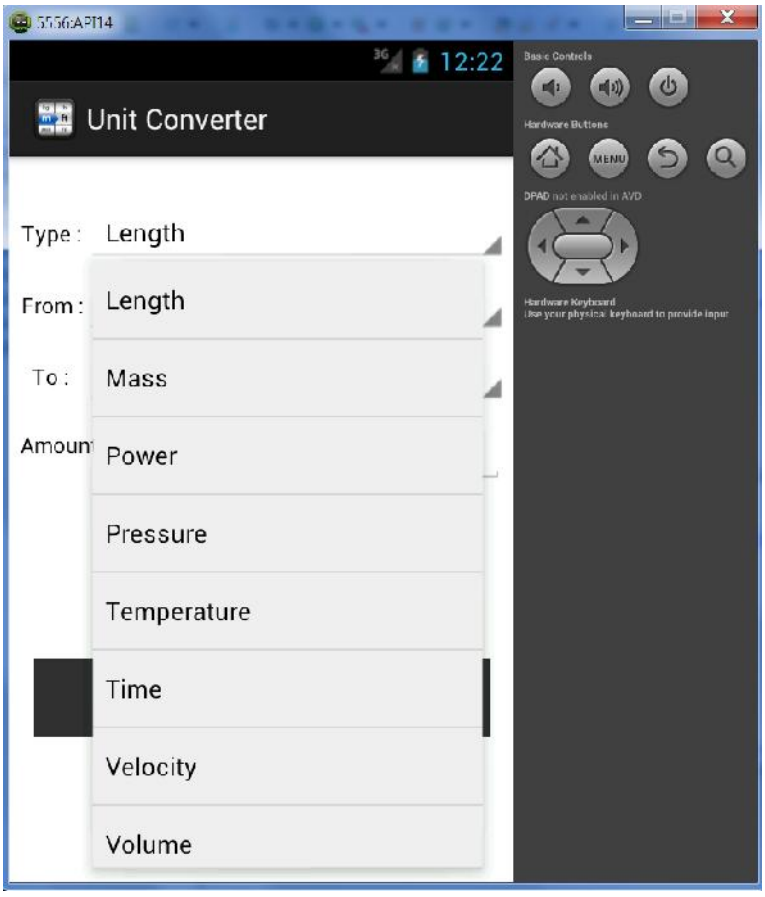

Fig. Screenshot on selecting the “Type” spinner

From :

This button is used to select the unit from which the user wants to convert to different unit(s). For example in the image shown below the user have selected “Decimal” which will mean that the user wants to convert a Decimal number to a different unit.

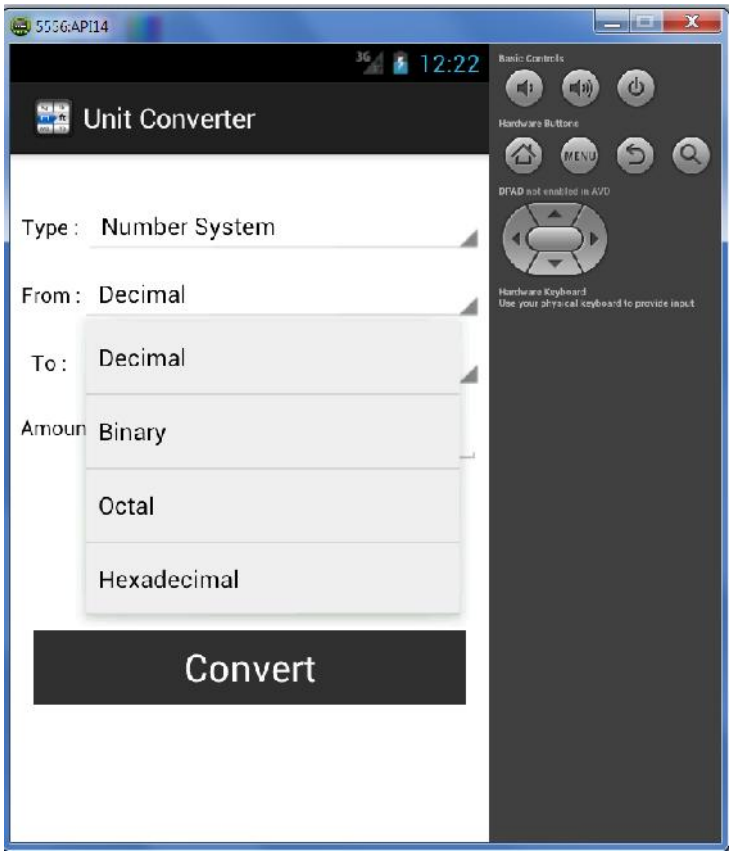

Fig. Screenshot on selecting the “From” spinner

To :

This button is used to select the unit to which the user wants to convert. For example in the image shown below the user have selected “Decimal” which will mean that the user wants the answer to be in Decimal format.

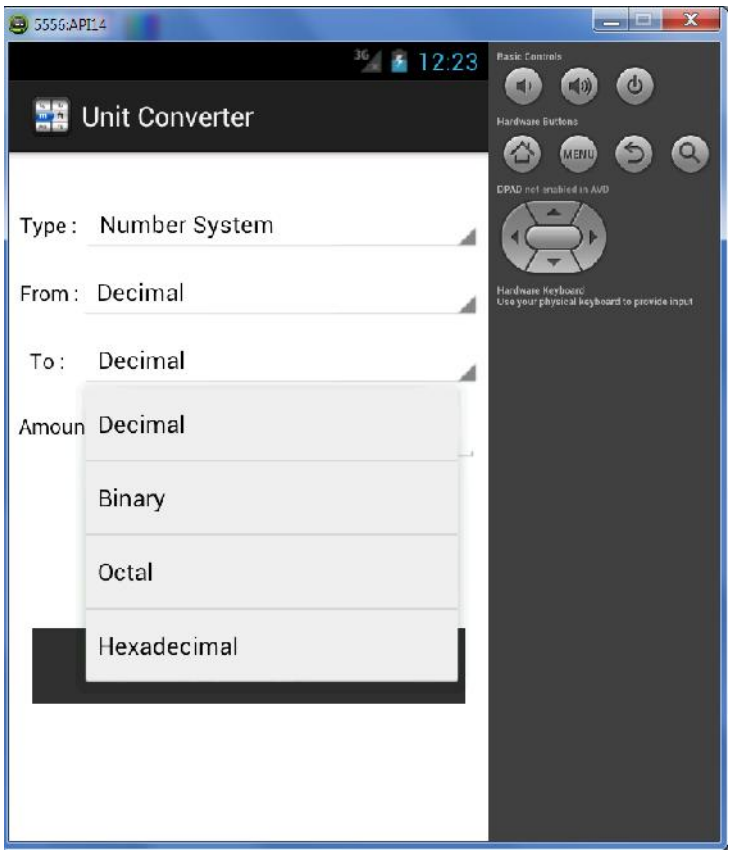

Fig. Screenshot on selecting the “to” spinner

The input box labelled as amount is used to enter the amount that the user wants to convert.

Convert :

After all the fields have been selected and filled this button is pressed to get the desired result (answer).

A working model of the converter is explained :

First select the type as Number System.

Select Decimal from the “from” spinner.

Select Binary from the “to” spinner.

Enter the amount to be converted.

Press the convert button to get the answer.

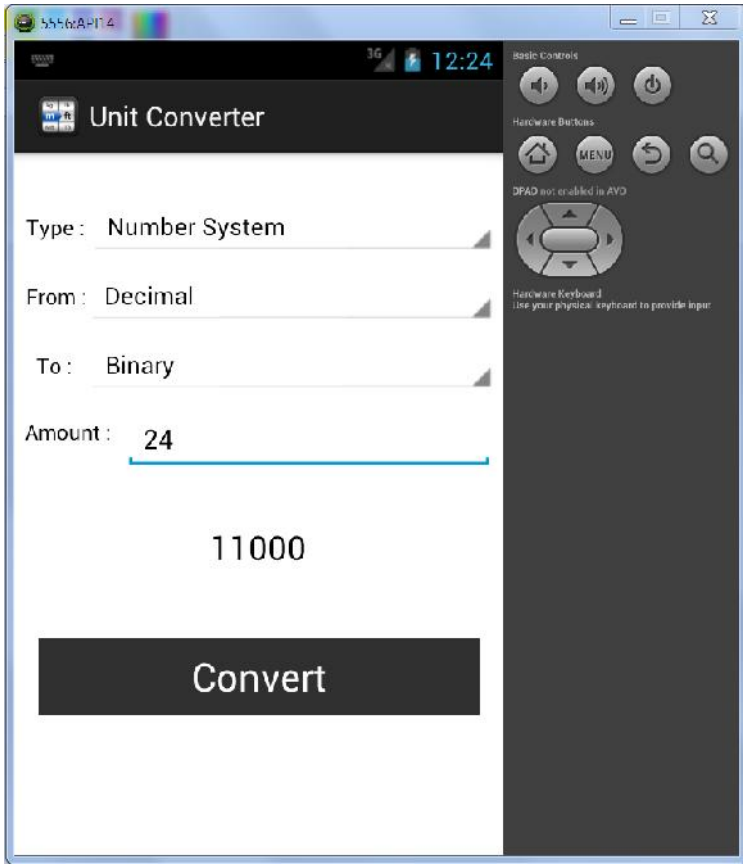

Fig. Conversion from decimal to binary format

Science Reference

Introduction:

This app “Science Reference” is basically designed to help the students of science for referring to the various formulas of chemistry and physics. The App can be used for referring to the various physics and chemistry constants. The App also contains videos, animations and web links for some formula’s.

User Manual :

This section tell the users how to use the “Science Reference App”.

Home Screen :

On launch, home screen appears which contains 3 options which on pressing different functions can be obtained.

1. Physics Formulas

2. Chemistry Formulas

3. Phy-Chem Constants

In the menu option there is “About” which gives the basic information about the app and the developer.

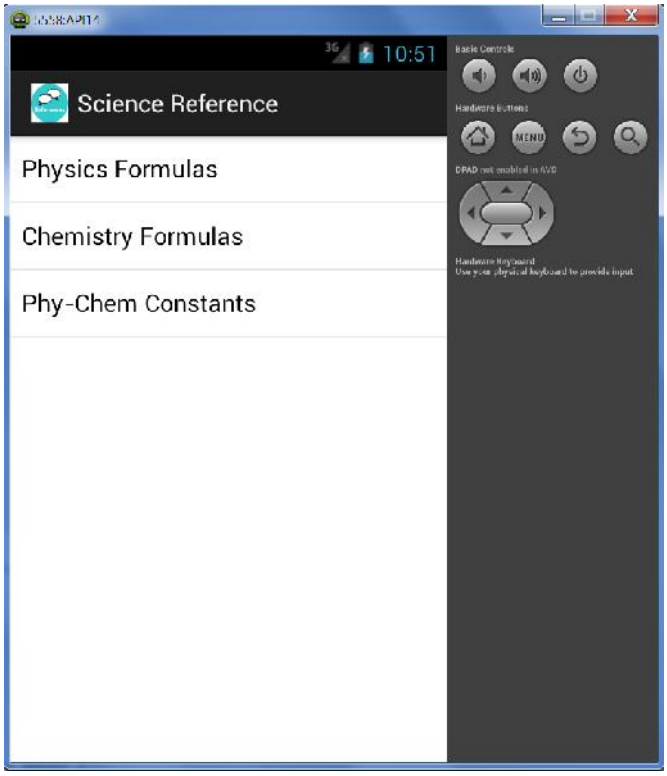

Fig. Home Screen for Science Reference App

Physics Formulas :

On launch, a screen shows up which contains 7 buttons which are labelled by the name of some physics chapters. The buttons can be used for getting the formulas of that particular chapter.

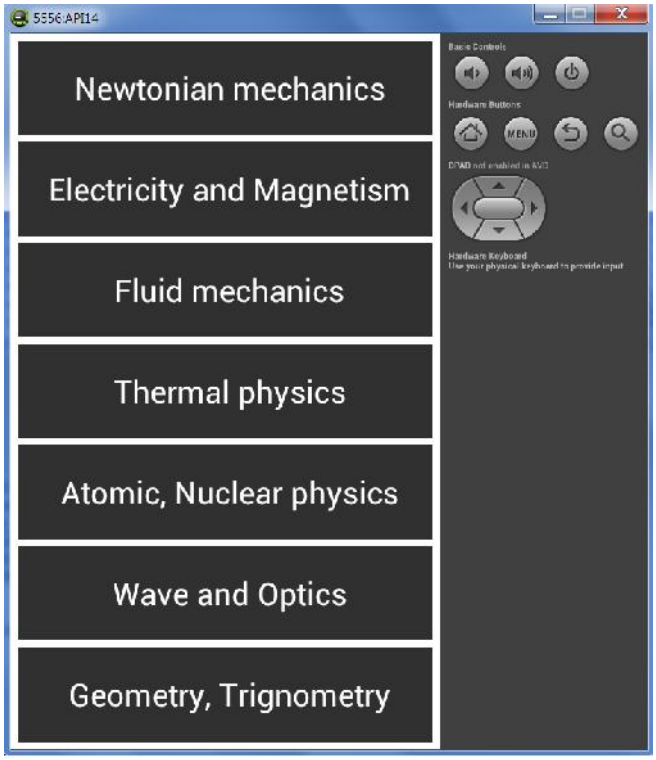

Fig. Screenshot of Physics chapter names

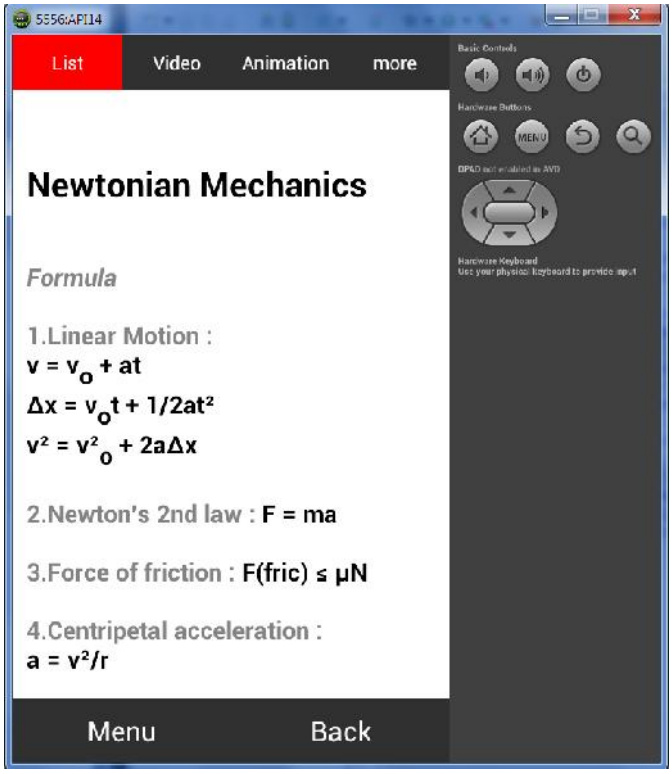

Fig. On tapping the button labelled as "Newtonian mechanics"

The “Back” button takes back to the previous screen which contains all the chapter names.

The “Main Menu” button takes back to the Home Screen of the App.

Video

The “Video” option can be used to watch the video available for the formula.

A working model is explained for formula #1 in the chapter Newtonian mechanics :

1. Select the option “Physics Formulas” from home screen
2. Select the chapter “Newtonian mechanics”
3. Select the “Video” option
4. Enter “1” in the search box
5. Press “Show”

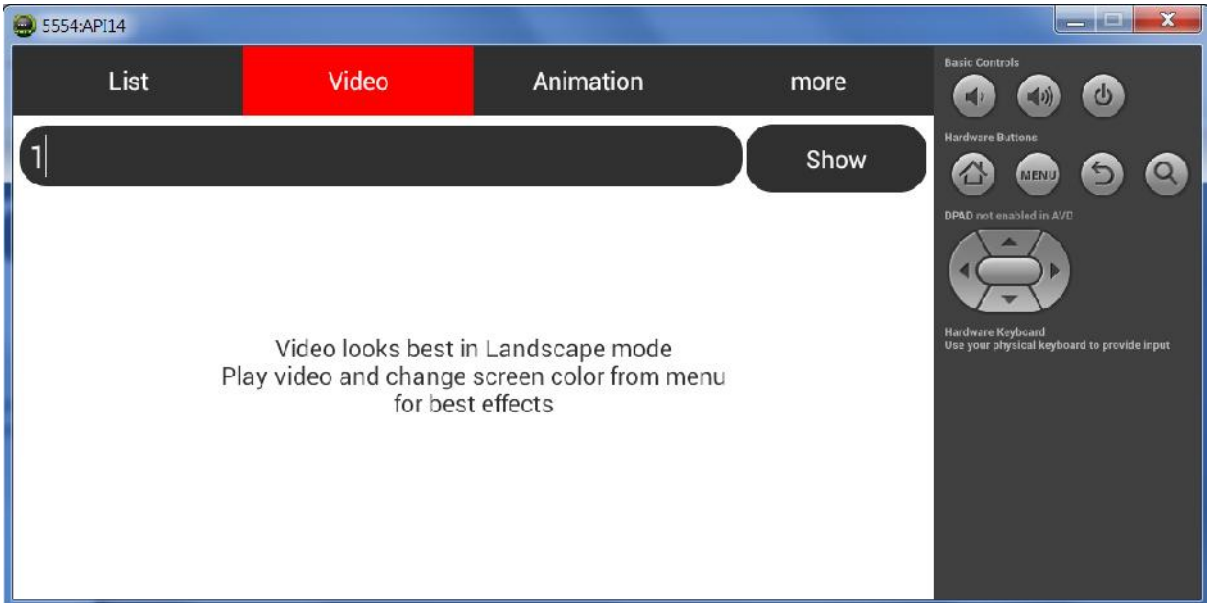

Fig. On tapping the button labelled as “Video”

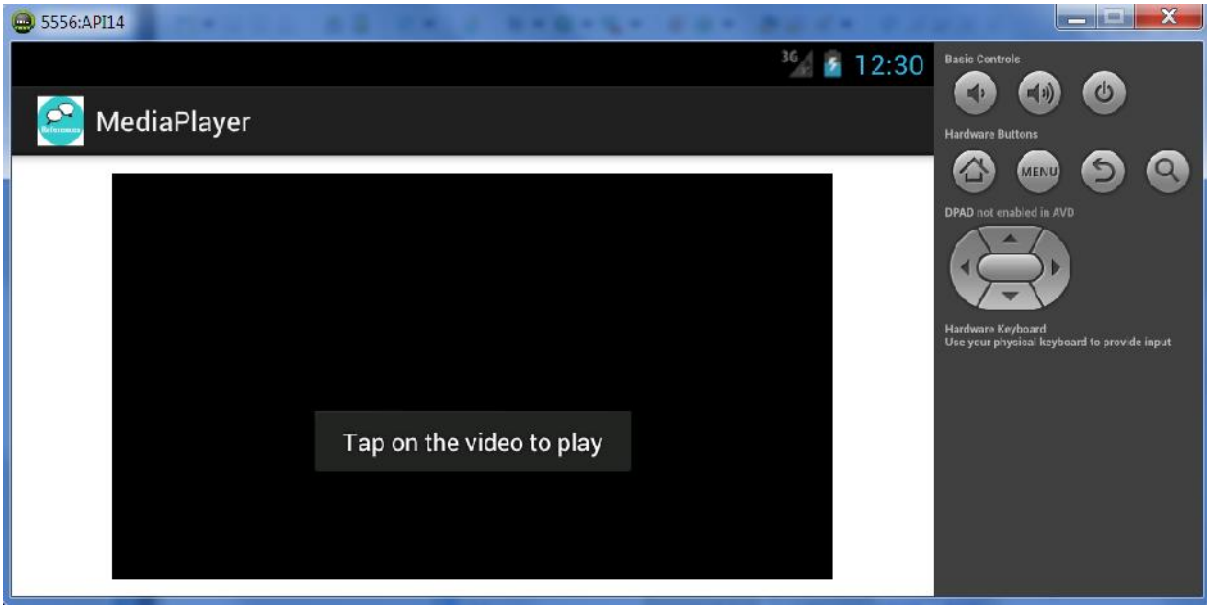

Fig. After pressing "Show"

6. Now tap on the video to play.

7. Change the background colour available under the "menu" option for best effects.

Animation

The "Animation" option can be used to watch the animation available for the formula.

A working model is explained for formula #1 in the chapter Newtonian mechanics :

1. Select the option "Physics Formulas" from home screen
2. Select the chapter "Newtonian mechanics"
3. Select the "Animation" option
4. Enter "1" in the search box
5. Press "Show"

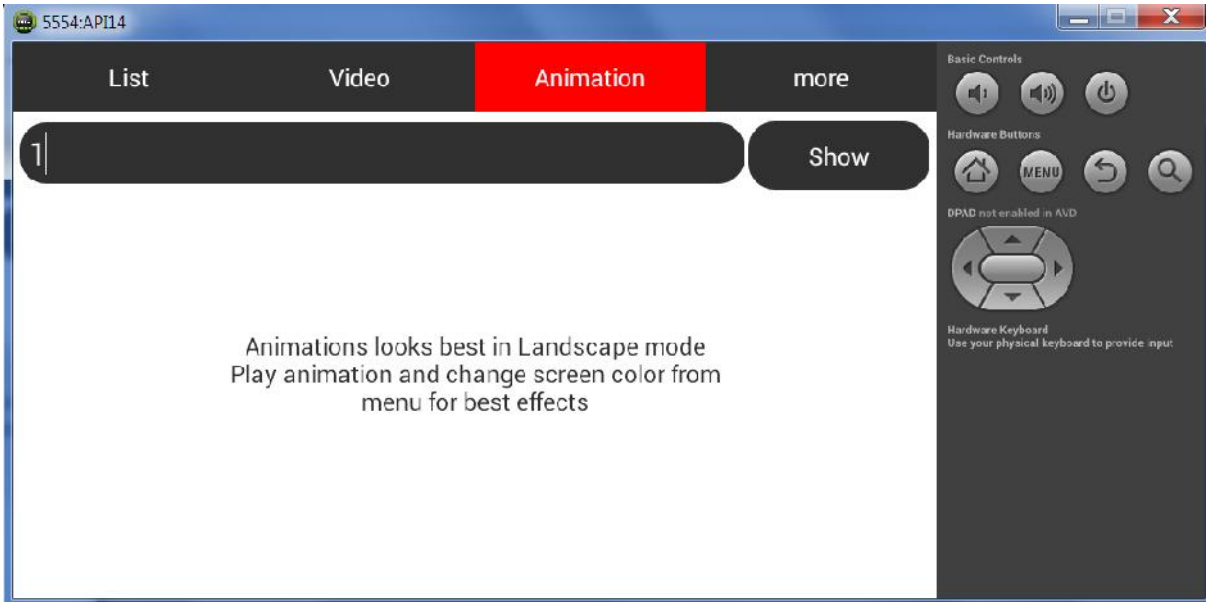

Fig. On tapping the button labelled as "Animation"

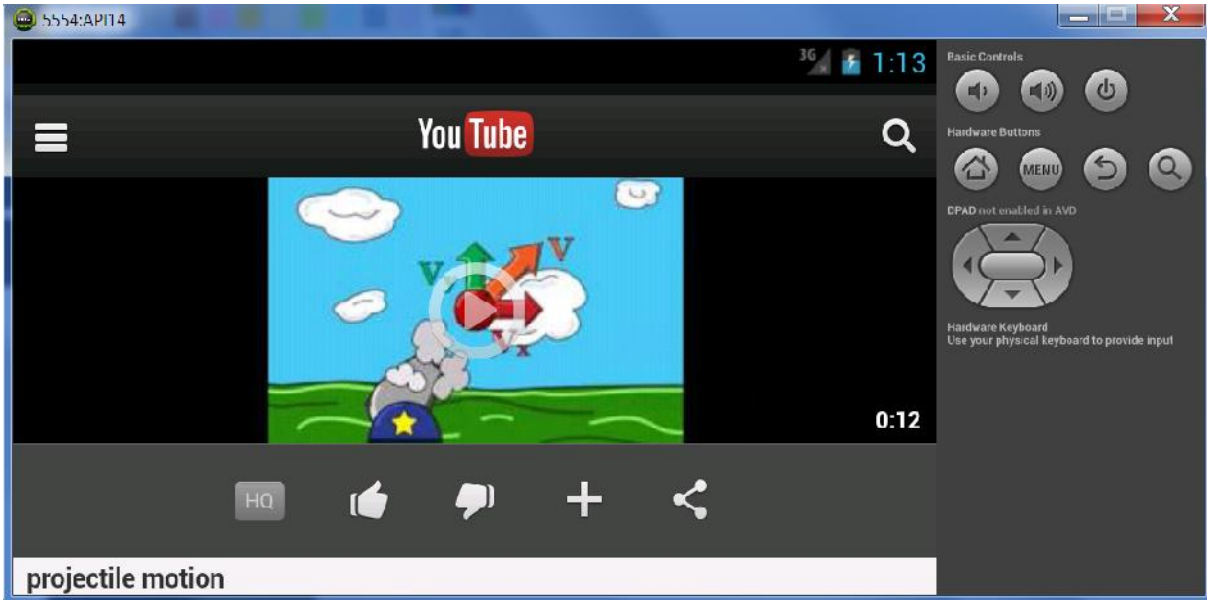

Fig. After pressing "Show"

The video can be played either in any browser or in the YouTube App available at "Google Play Store".

More

The “More” option can be used to see more details available for the formula.

A working model is explained for formula #1 in the chapter Newtonian mechanics :

1. Select the option “Physics Formulas” from home screen
2. Select the chapter “Newtonian mechanics”
3. Select the “Animation” option
4. Enter “1” in the search box
5. Press “Show”

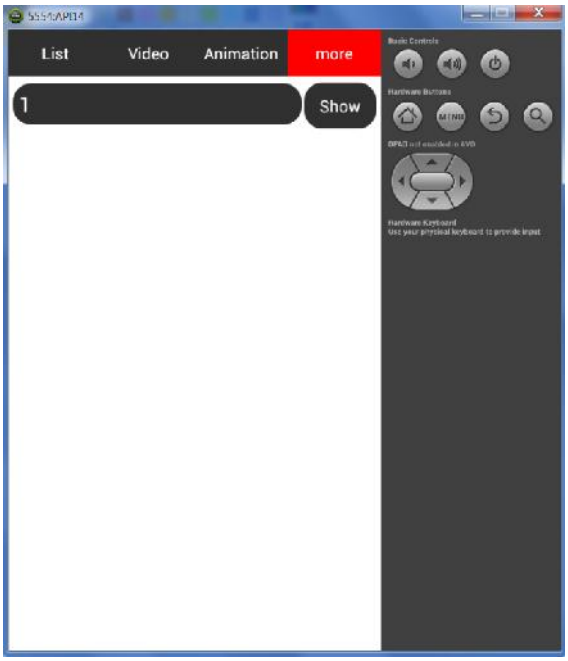

Fig. On tapping “more”

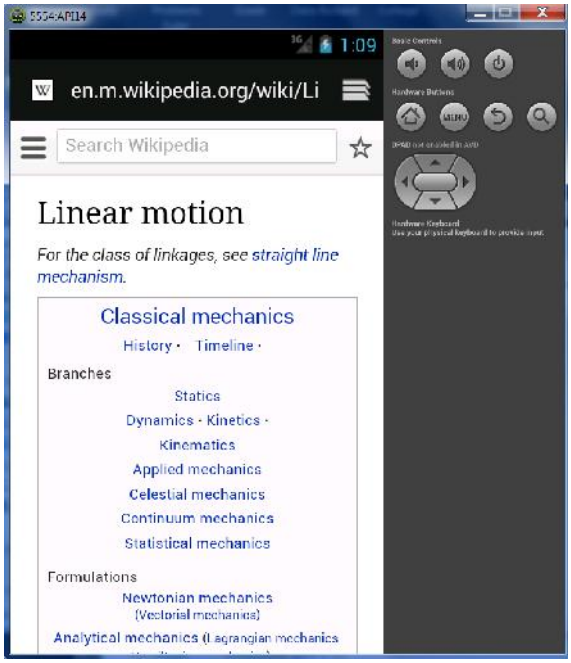

Fig. After pressing “Show”

Chemistry Formulas :

On launch, a screen shows up which contains 5 buttons which are labelled by the name of some chemistry chapters. The buttons can be used for getting the formulas of that particular chapter.

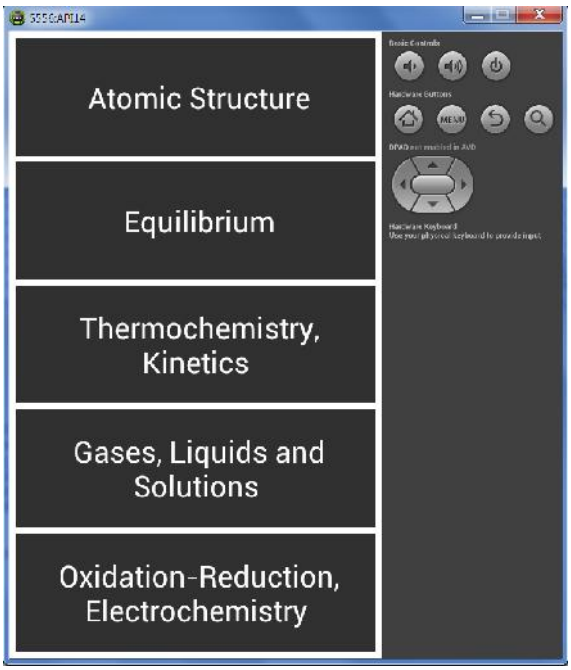

Fig. Screenshot of Chemistry chapter names

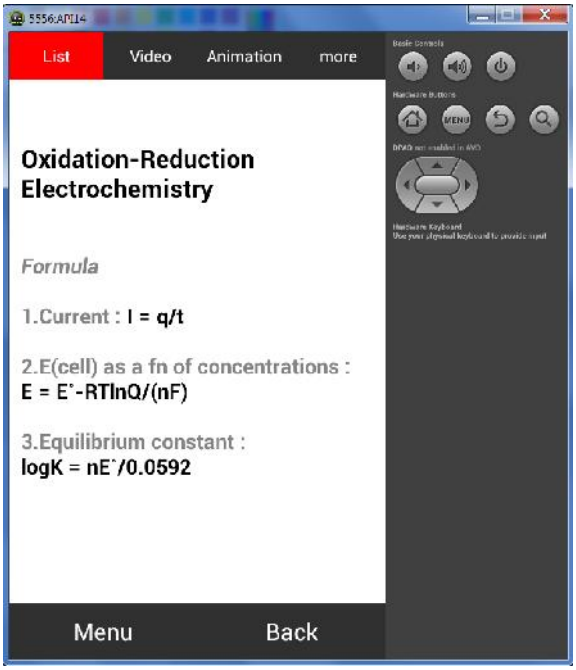

Fig. On tapping the button labelled as "Oxidation-Reduction, Electrochemistry"

The "Back" button takes back to the previous screen which contains all the chapter names.

The "Main Menu" button takes back to the Home Screen of the App.

Phy-Chem Constants :

On selecting this option various physics and chemistry constants are shown.

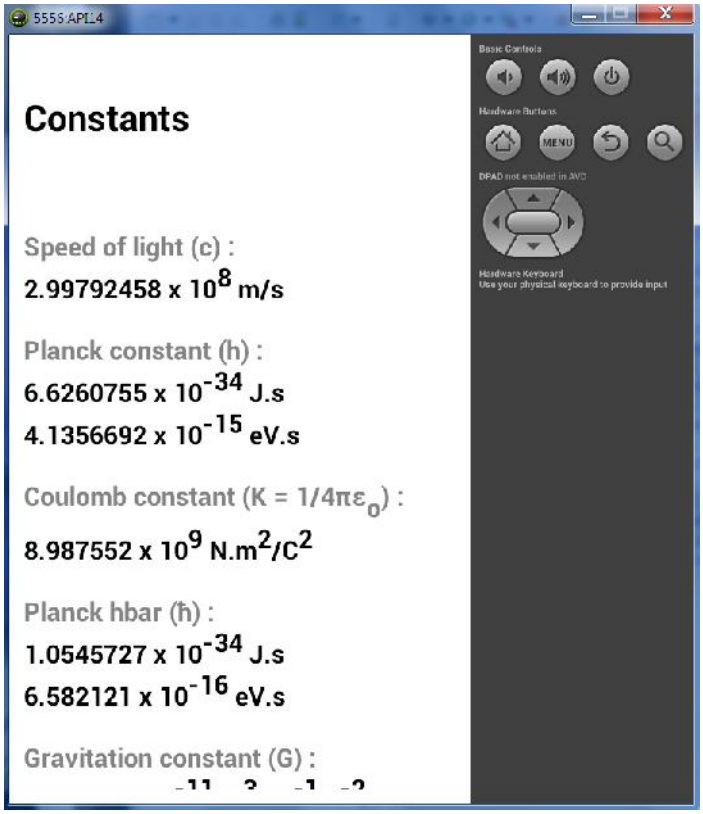

Fig. On tapping the button "Phy-Chem Constants"

Periodic Table

Introduction:

This app “Periodic Table” is basically designed to help the students of science for referring to the various element’s details. The App can also be used to learn the elements and search the elements by their name, # or symbol.

User Manual :

This section tell the users how to use the “Periodic Table App”.

Home Screen :

On launch, home screen appears which contains 118 options which on pressing different details of different elements are displayed and 3 selection mode button which can be used to select different options available for the software.

1. Table
2. Learn
3. Search

In the menu option there is “About” which gives the basic information about the app and the developer.

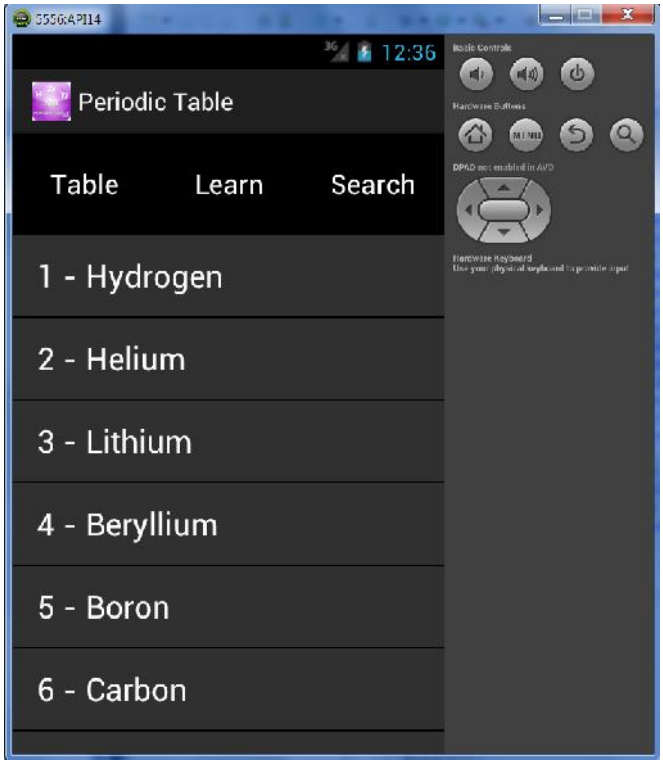

Fig. Home screen of the "Periodic Table" App

Table :

The table option contains the diagram of the periodic table.

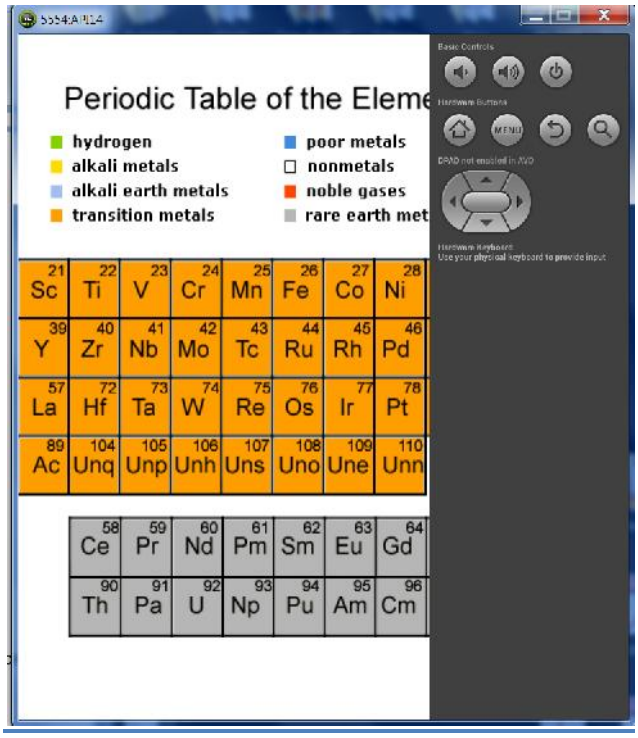

Fig. Snapshot for the "Table" option

Learn :

This option can be used to learn about the elements. This button on pressing shows up a random element with its complete detail.

Search :

The search button can be used to search the elements by their name, atomic no. or by their symbol.

Voice search is also added to the app which can be used to search the elements either by their names, atomic numbers or by their symbols.

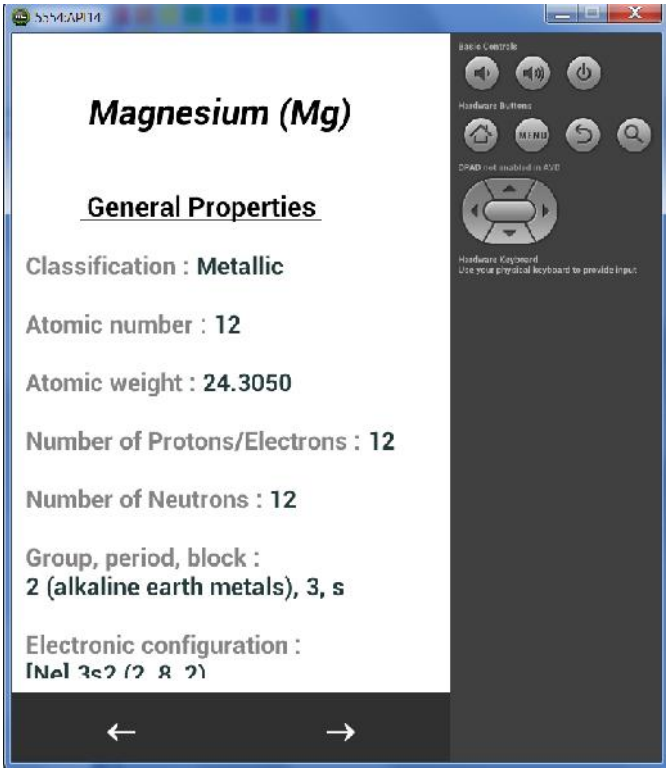

Fig. Details of element Magnesium (Mg) being displayed

"→" can be used for viewing the properties of the next element in the peric table.

"←" can be used for viewing the properties of the previous elemen periodic table.

"Menu" takes back to the list of the elements.