

VO on Android Platform

by

Santosh Jagade
(Virtual Observatory India)

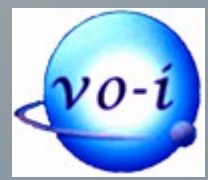
IVOA Interop – 2014
Madrid, Spain





Android Apps for VO

- Apps presented at Interop in Pune, India (2011)
 - Name Resolver - IUCAA
 - Cosmology Calculator - IUCAA
 - SkySurveys based on HEALPix - CDS



Current Projects @ VOI

We are currently working on two apps for the Android platform.

- Cone Search
- StatLite (A lite statistics application for high school students)



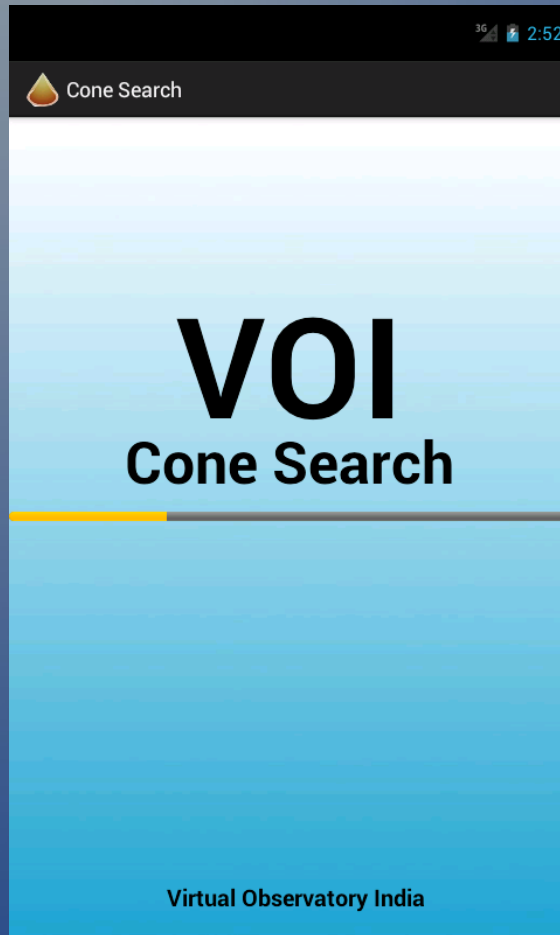
Cone Search

- One point access to query any catalog in the IVOA registry.
- User can resolve object name using NED and SIMBAD resolver service.
- Allows user to search selected object/coordinates within any selected catalog.
- User can preview the results and/or download the VOTable onto the device.



Cone Search

(How it Works)





Cone Search

(How it Works)

The image displays three overlapping screenshots of the Cone Search application interface, illustrating the search process.

Top Screenshot (Left): Shows the "Available Cone Search Services" list with columns for "Short Name" and "Title".

Short Name	Title
SPMOCS	San
A1	HEA
A1POINT	HEA
A2LED	HEA
A2PIC	HEA
A2POINT	HEAO 1 A2 Pointing Catalog
A3	HEAO 1 A3 MC LASS Catalog
A4	HEAO 1 A4 Catalog of High-Energy X-Ray
Abell	Abell Clusters
ACRS	Astrographic Catalog of Reference Stars

Top Screenshot (Right): Shows the "Cone Search Parameter" form with the following fields:

- Cone Search URL :
- Object Name / Id :
- Right Ascension (J2000) :
- Declination (J2000) :
- Radius : deg

Bottom Screenshot (Left): Shows the "Selected Resource Description" section with the text: "Data is not selected."

Bottom Screenshot (Right): Shows a loading dialog box with the text: "Fetching records. Please wait ..."



Cone Search

(How it Works)

Cone Search

Available Cone Search Sources

Short Name	HEA
SPMOCS	San
A1	HEA
A1POINT	HEA
A2LED	HEA
A2PIC	HEA
A2POINT	HEA
A3	HEA
A4	HEA
Abell	Abel
ACRS	Astr

Selected Resource Description: Data is not selected.

Cone Search Parameter

Cone Search URL :
Object Name / Id :
Right Ascension (J2000) :
Declination (J2000) :
Radius :

Parsing records. Please wait ...

Parsing records from <http://voi.iucaa.ernet.in:9090/ConesearchXML/m33.xml>

72% 72/100

Meta Data Table

View VOTable Save VOTable Invoke Stat-Lite Copy URL



Cone Search

(How it Works)

Available Cone Search Sources

Short Name	Full Name
SPMOCS	San
A1	HEA
A1POINT	HEA
A2LED	HEA
A2PIC	HEA
A2POINT	HEA
A3	HEA
A4	HEA
Abell	Abel
ACRS	Astr

Selected Resource Description

Data is not selected.

Cone Search Parameter

Cone Search URL :
Object Name / Id :
Right Ascension (J2000) :
Declination (J2000) :
Radius :

Meta Data Table

ColNo.	Column Name	Data Type	Width
1	ra	double	
2	dec	double	
3	vmag	float	
4	Search_Offset	double	
5	name	char	
6	acrs_id	char	

Showing Sample Records [Total records found: 23]

ra	dec	vmag	Search_Offset
23.320792	29.887758	8.7	46.9044284242225
23.414229	29.978931	10.4	40.9342864039406
22.523938	30.150544	10.6	57.3658699489281
24.057792	30.279406	10.7	38.3440365743405
23.404517	30.389219	8.2	16.5121240296440

View VOTable | Save VOTable | Invoke Stat-Lite | Copy URL



Cone Search

(How it Works)

Available Cone Search S

Short Name	Me
SPMOCS	San
A1	HEA
A1POINT	HEA
A2LED	HEA
A2PIC	HEA
ACRS	Astr

Selected Resource Descri

Data is not selected.

Cone Search Parameter

Cone Search URL :
Object Name / Id :
Right Ascension (J2000) :
Declination (J2000) :
Radius :

Showing Sample Reco

ColNo.	Column Name
1	ra
2	dec
3	vmag
4	Search_Offset
5	name
6	acrs_id

```
<?xml version="1.0"?>
<VOTABLE xsi:noNamespaceSchemaLocation="http://www.ivo
<RESOURCE>
<INFO name="Info:Name resolution" value="Position 23.4620
<TABLE>
<DESCRIPTION>Query result for:&#xA;select name, ra, dec, vi
<FIELD ucd="ID_MAIN" name="name" arraysize="*" datatype=
<DESCRIPTION>Source Designation</DESCRIPTION>
</FIELD>
<FIELD unit="degree" ucd="POS_EQ_RA_MAIN" name="ra" for
<DESCRIPTION>Right Ascension</DESCRIPTION>
</FIELD>
<FIELD unit="degree" ucd="POS_EQ_DEC_MAIN" name="dec" ;
<DESCRIPTION>Declination</DESCRIPTION>
</FIELD>
<FIELD ucd="phot.mag;em.opt.V" name="vmag" format=".1f" ;
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<FIELD ucd="ID_MAIN" name="acrs_id" arraysize="*" datatype
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</FIELD>
<FIELD name="Search_Offset" format=".4f" datatype="double"
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</VOTABLE>
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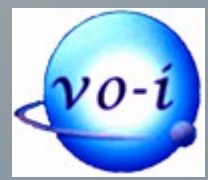
View VOTable Save VOTable



Stat-Lite

- Is a pedagogical application intended to introduce basic statistical concepts to high school students.
- Specifically engineered to run on the Aakash tablet.
- Aakash is a low cost Android tablet that is widely distributed by the Government of India to the student community.
- These are available in two versions only Wi-Fi (~ \$70*) and Wi-Fi with EDGE (~ \$80*)
- Typical configuration – Cortex A8 1GHz, 512MB RAM, 7" screen, 4GB storage (32GB expandable)

* These are commercial prices. The Govt. of India provides these tablets to students at subsidized rates



Stat-Lite (contd.)

- Students can
 - Plot simple mathematical functions.
 - Upload a data file
 - Obtain descriptive statistics, correlation, straight-line fits
 - Plot line graphs and bar charts.
 - Visually study the effect of outliers on straight-line fits.



Stat-Lite

(How it Works)

Stat-Lite

Stat-Lite^{Beta}

A compact yet powerful app to perform simple statistical analysis and visualize mathematical functions. Aimed at senior secondary students and above, this tool acts as a supplement to their coursework by providing quick and graphical output for their problem sums.

[More...](#)

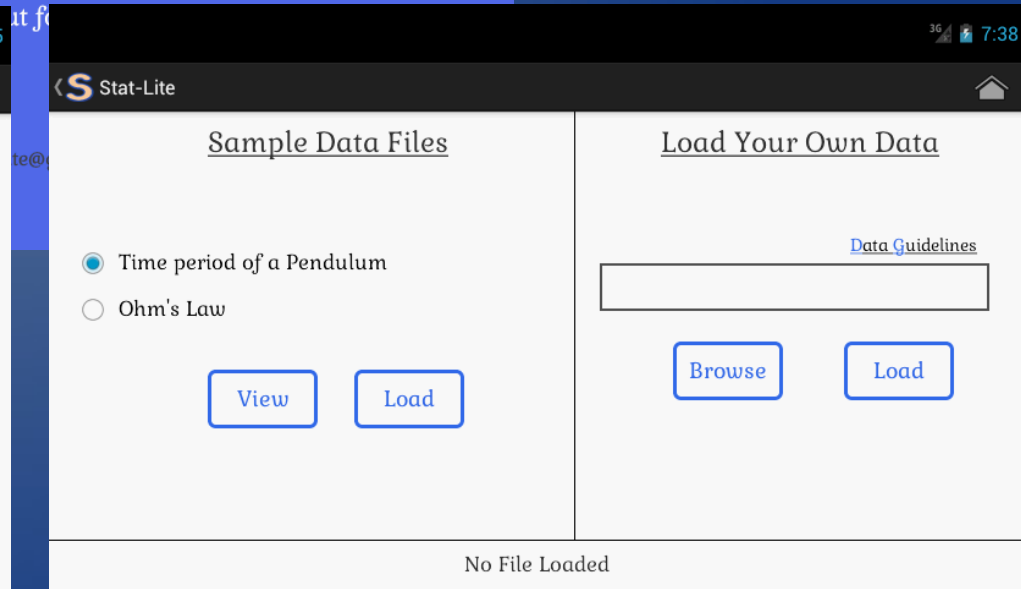
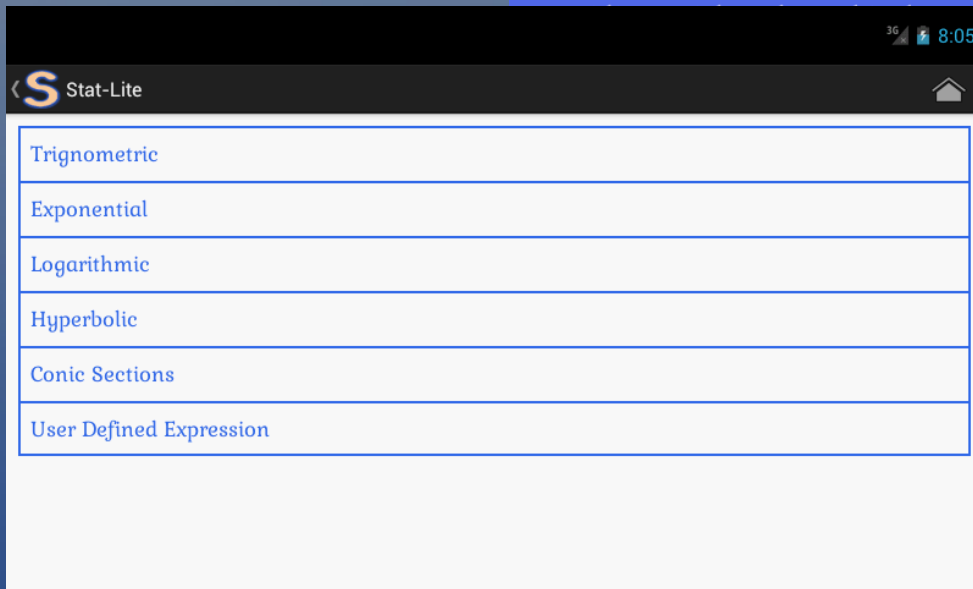
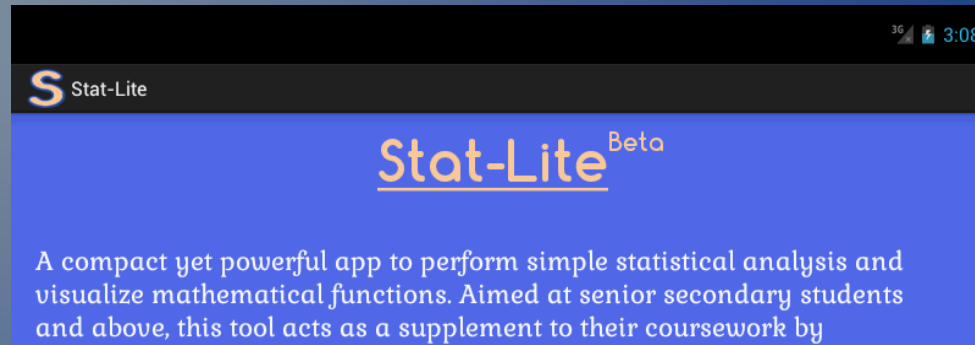
Please send your comments/suggestions at statlite@gmail.com

[Plot Function](#) [Analyze Data](#)



Stat-Lite

(How it Works)





Stat-Lite

(How it Works)

A screenshot of the Stat-Lite app interface. The app is titled "Stat-Lite" in the top left corner. The interface is split into two columns. The left column is titled "Plot a Function of X" and contains five radio button options: Sin, Cos, Tan, Cosec, and Sec. The right column is titled "Enter Range of X (in Degrees)" and contains a range input field with the text "-180 ≤ X ≤ 180". A "Plot" button is located at the bottom center of the interface.

Stat-Lite

Plot a Function of X

Sin

Cos

Tan

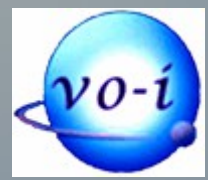
Cosec

Sec

Enter Range of X
(in Degrees)

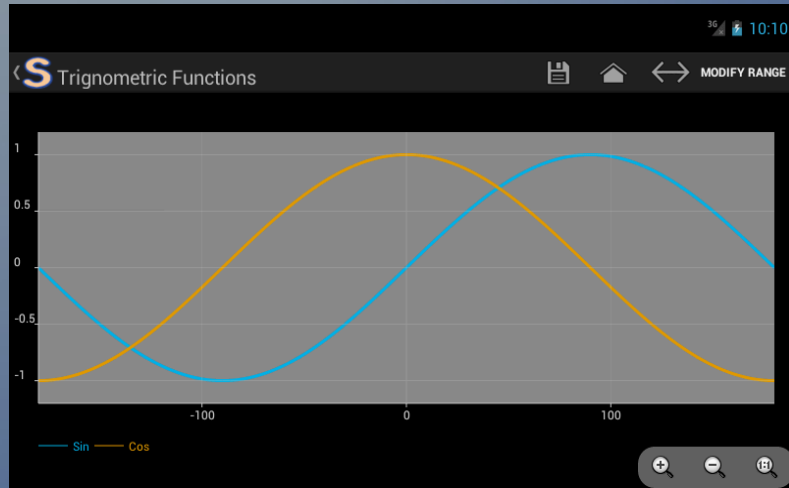
-180 ≤ X ≤ 180

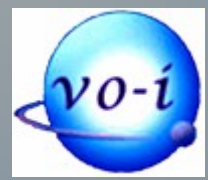
Plot



Stat-Lite

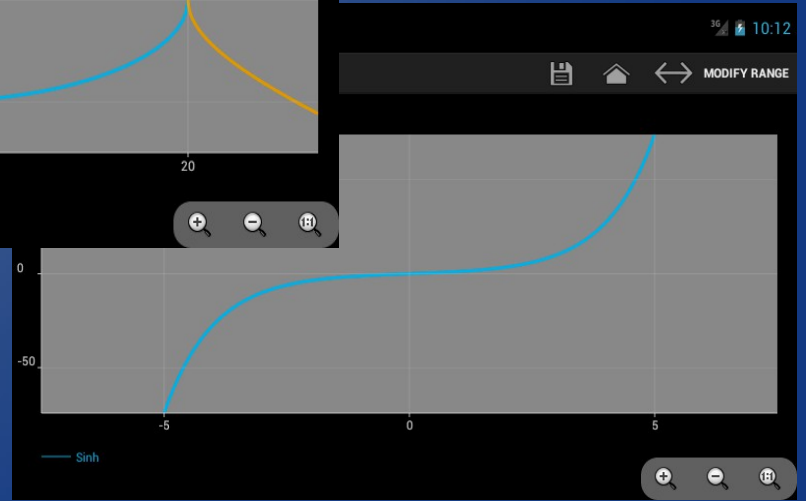
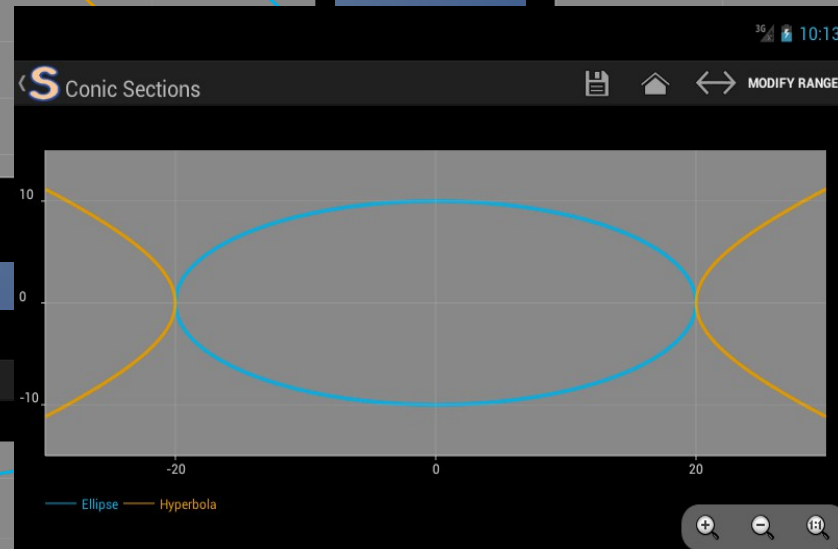
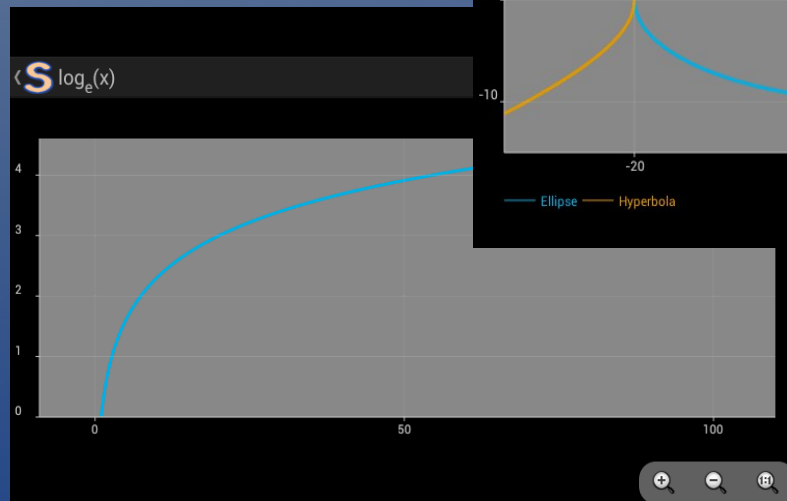
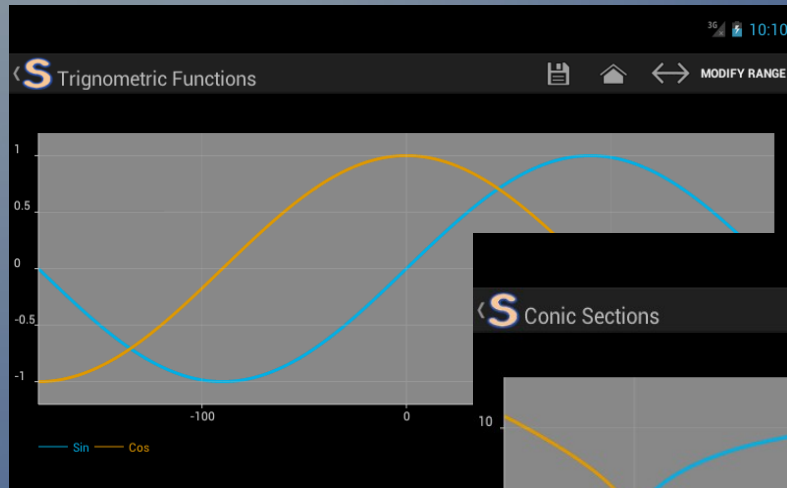
(How it Works)

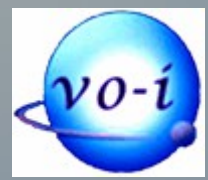




Stat-Lite

(How it Works)





Stat-Lite

(How it Works)

Stat-Lite

3G 8:03

CLEAR

Compute Average

Find Central Value

Get Frequency Table

Obtain Covariance

Obtain Correlation

Fit a straight line

frequency table

String_Length_cm										
Variable	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	
Frequency	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Time_Period_sec										
Variable	3.9	4.5	4.7	5.5	5.6	5.9	6.2	6.6	7.4	
Frequency	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0

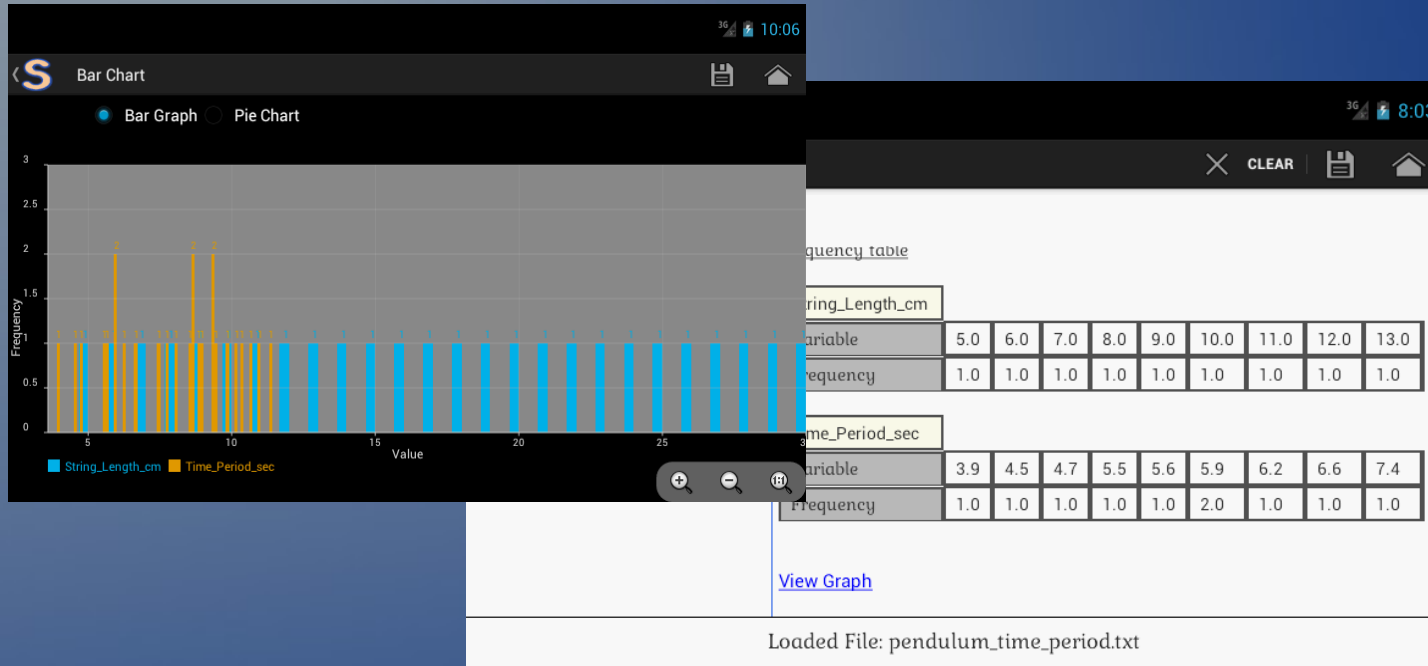
[View Graph](#)

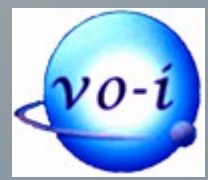
Loaded File: pendulum_time_period.txt



Stat-Lite

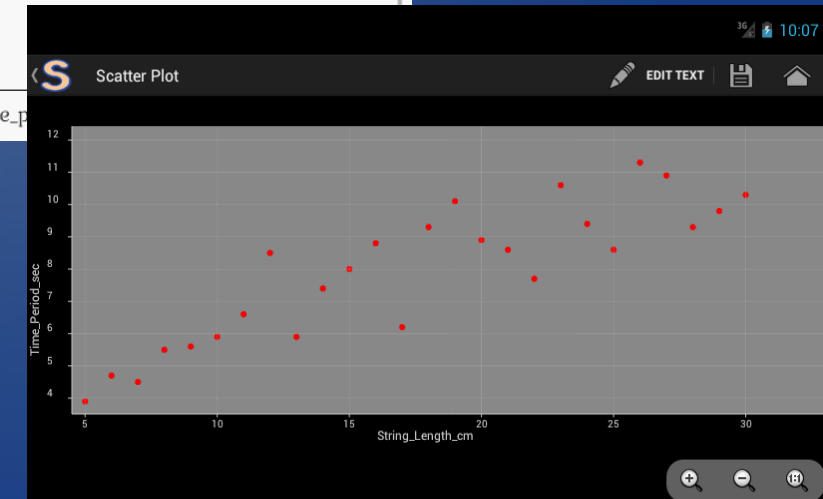
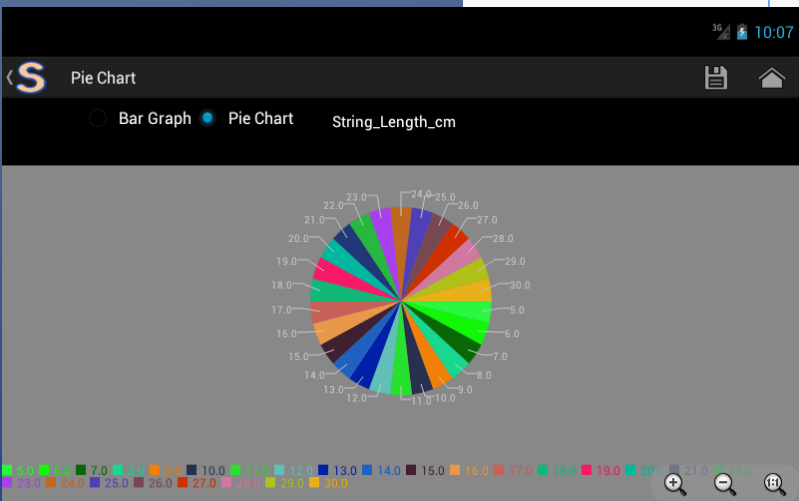
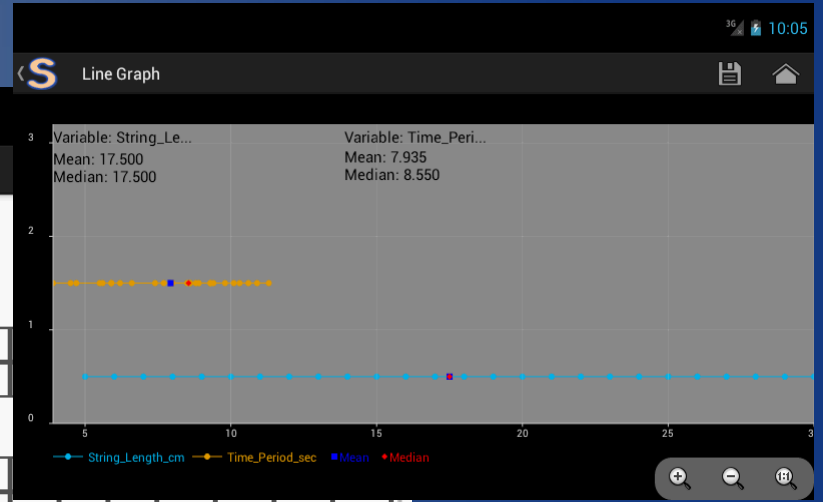
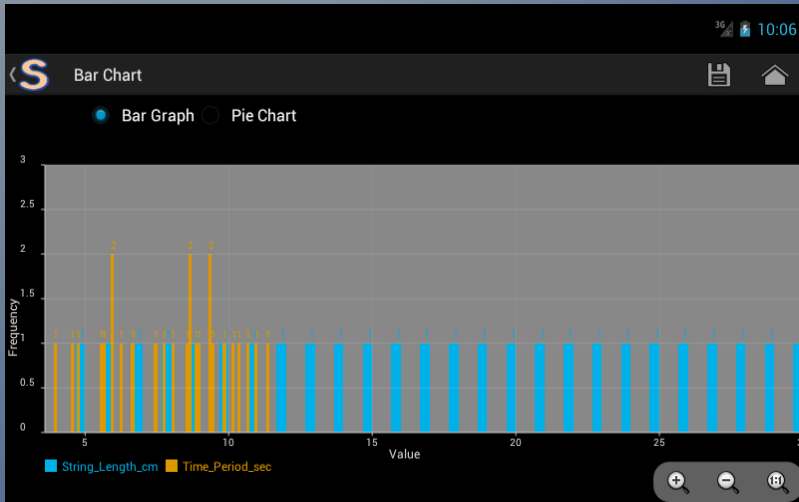
(How it Works)





Stat-Lite

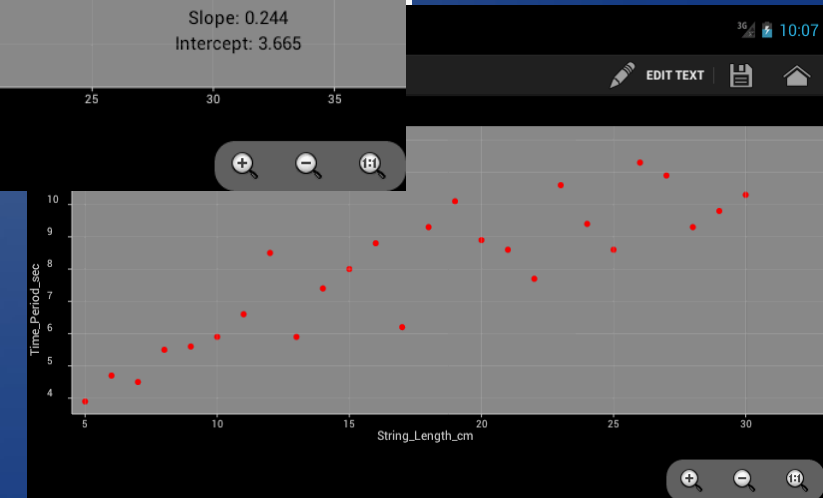
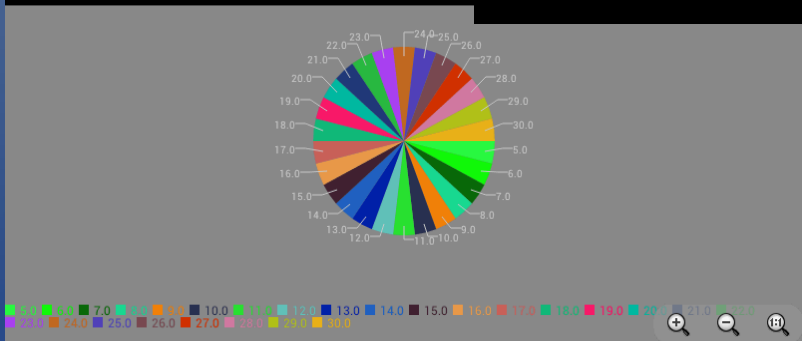
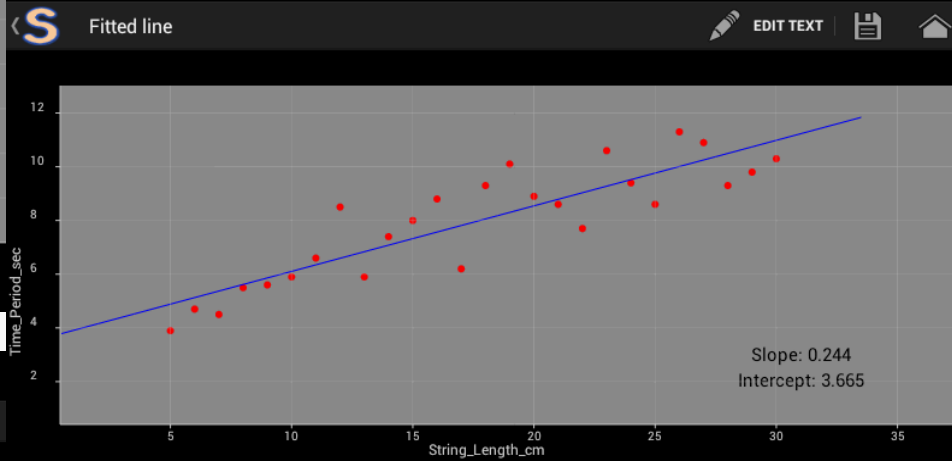
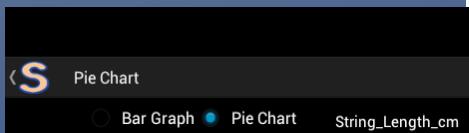
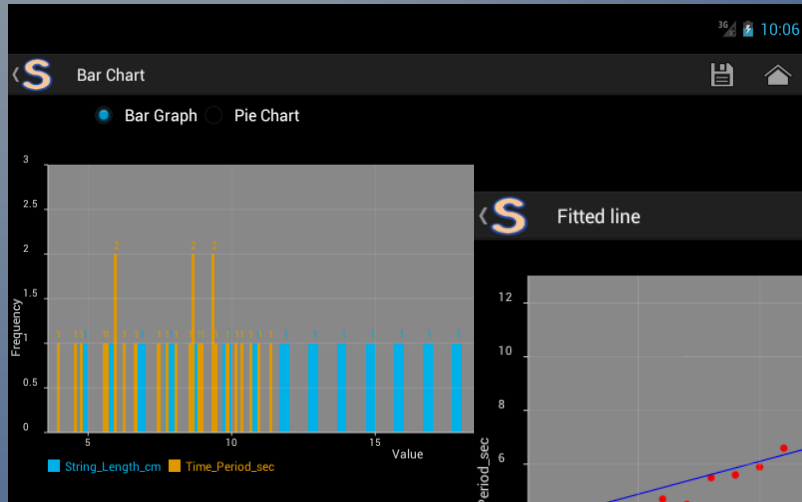
(How it Works)





Stat-Lite

(How it Works)



Thank You

Principal Investigators (PI)

Ajit K. Kembhavi
Dipankar Bhattacharya

Developer Team

Prerak Garg – StatLite
Satish Phadke – Cone Search
Abdulahim Hannure – Cone Search

Technical Team

Tejas Kale
Ajay Vibhute
Santosh Jagade
Sharmad Navelkar
Kaustubh Vaghmare