

# SEELabelt

## Redefining Science and Engineering Laboratories



## Contents

- 1x SEELabelt
- 1x 5V , 2A Power Adapter
- 1x HDMI - VGA Adapter
- 1x Standard Accessory set



<http://CSparkResearch.in>



## Instrument Cluster

- 4-Channel, Up to 2MSPS oscilloscope
- 12-bit Voltmeter. Ranges from +/15mV to +/-160 V
- 3x 12-bit Programmable voltage sources +/-3.3V, +/-5V, 0-3V .
- 12-bit Programmable current source, 0-3.3mA
- 8MHz Frequency Counter.
- Extensible via various custom add-ons
- 4-Channel, 4MHz, 15nS Logic Analyzer
- 2x function generators. 5Hz to 5KHz, with phase difference control. Manual amplitude adjustment.
- 4x PWM generators. 15nS resolution. Upto 8MHz. Independent phase and duty cycle control.
- Capacitance Measurement. pF to uF range
- I2C, SPI , UART expansion bus.
- Built in wireless transceiver for remote data acquisition. Wireless subunits must be bought separately, and can support plug n play sensors.

## Pre-installed Software

- SEELabelt Control Panel with graphical utilities for control and acquisition.
- Applications for a host of science and engineering experiments.
- KiCAD - software suite for electronic design automation. SEELabelt was built using KiCAD.
- Scipy - Library of Scientific Tools for high level computation and analytics.
- Matplotlib - Plotting library for publication quality figures.
- iPython console integrated with the hardware access library.
- Chromium Browser, Libre Office, and various utilities like GIMP, smPlayer, Arduino IDE etc

## Inbuilt PC Specs

- @ ARM Cortex A7 1.2GHz SoC
- 1GB DDR3 RAM
- 600MHz Accelerated Graphics
- 3x USB 2.0 Ports
- HDMI - CEC 1080p, Composite Video
- 100MBPS Ethernet
- Stereo Audio + mic via AUX/HDMI
- Ubuntu Mate OS 15.04

## Getting Started

- Make the Connections for the Monitor, Mouse and Keyboard. In case you have a VGA Monitor, use the HDMI-VGA adapter contained in this box.
- Plug in the 5V adapter supplied with this unit, and the device should start booting. No external power switch is present. Default UserName : **seelab** , Default Password : **see123**
- graphical utilities can be launched by navigating to *Applications -> Education -> SEELabelt*.
- You will then find a host of icons for launching experiments. Mouse over them for brief descriptions.
- Upon Clicking any of them, the tab will change to a more detailed help window.
- Direct access to control and acquire data is located in the *controls* and *Advanced Controls* tabs.

