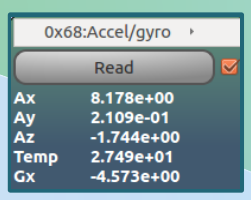
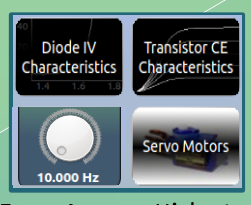
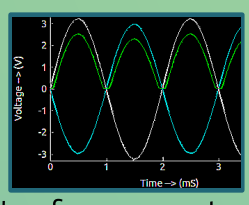
GUIs For Experiments



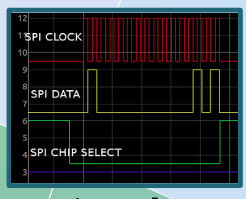
Plug n Play Sensors



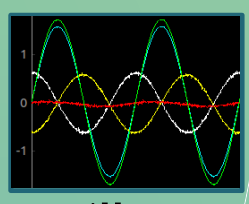
Easy Access Widgets



Waveform generators



Logic Analyzer



Oscilloscope

SLIDE OUT

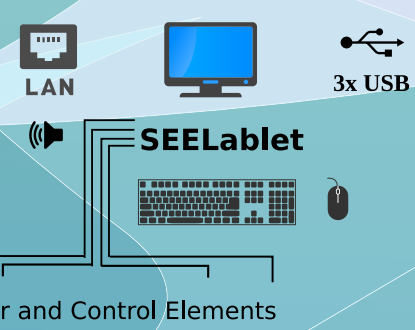
SEELablet

Redefining Science and Engineering Labs

CSpark Research

Contents

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



Manufacturer: CSpark Research (OPC) Pvt. Ltd.
Address of Manufacturer : C202, Plot 9, Sec 9, Dwarka, New Delhi 110075

Maximum Retail Price : Rs. 14,000

Wattage : 10W Maximum

Contact in case of complaints:
- csparkresearch@gmail.com
- support@csparkresearch.in

CSpark Research

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 support plug n play sensors.*

Pre-installed Software

- SEELablet 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. SEELablet 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.

PC Specifications

- © 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 -> SEELablet.*
- 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.

Miscellaneous Features

- Control Up to 4 servo Motors via PWM outputs
- Daisy Chained RGB LED (WS2812B) signalling
- Measure time intervals between various edges of multiple digital input signals .
- Control 2 Phase Servo Motors via SQR1-4
- Spring loaded connectors for rapid prototyping
- Manual Gain control for analog input CH3 by externally connecting Rg to GND via a known resistor.

Supported Plug n Play Sensors

- MPU6050 : 3-Axis Accelerometer , 3-Axis GyroScope, Temperature Sensor Module.
- HMC5883L : 3-Axis Magnetometer with adjustable ranges
- MLX90614 : Passive IR temperature sensor
- BMP180 : Pressure , Temperature and Altitude module.
- TSL2561 : Luminosity measurements up to 40K Lux
- SHT21 : Ambient Temperature and Humidity Module
- BH1750 : Luminosity Module
- SSD1306 : 128x64 OLED Display

Open Source Resources : Library, Applications, Schematics

https://github.com/csparkresearch/SEELablet

https://github.com/csparkresearch/SEELablet-apps