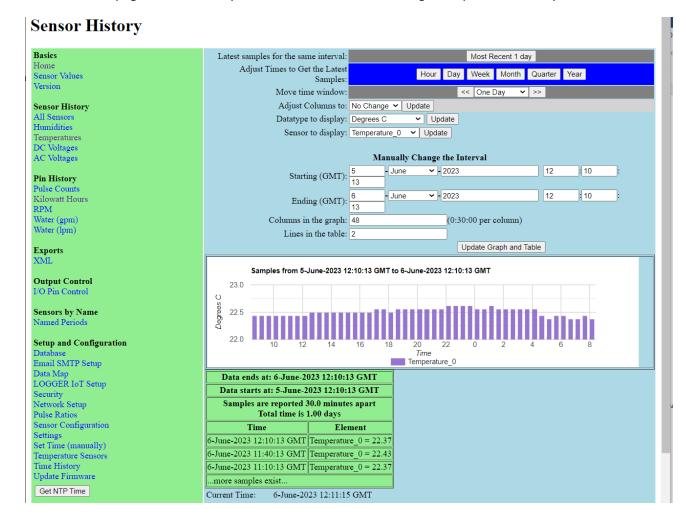# www.dragonnorth.com/logger

What does a LOGGER do? The LOGGER is a standalone IoT device that reads sensors and stores the data. The LOGGER captures 256 bytes of data on up to 128 sensors every few seconds. The data is stored on an SD card and kept permanently. About 20 years of data taken once every ten seconds fit on a 32Gb card.

The LOGGER is a 'last mile' Internet of Things sensor system. It captures sensor data from sensors and logs the sensor history permanently locally on the SD card. The LOGGER is a Web Server allowing direct observation of the data that has been logged. The LOGGER can also control output pins. The LOGGER then reports to standard cloud-based Internet of Things services up-linking the sensor data to the cloud.

This is a web page hosted directly on the LOGGER device showing a temperature history:

Capturing sensor history is often important. Many sensor systems capture only the current state. Without sensor history many control problems are difficult or impossible, for example controlling a furnace from a thermostat is much easier with a few minutes of history to make sure the furnace is not turned on and off too frequently.

The LOGGER seeks to combine sensing, actuation, and usage monitoring on a single platform and to meld those with long term history logging. Often missing in prior solutions is local long term data capture (so history is not lost when connectivity goes down), actuation of outputs, integration of a large variety of sensors in a single device and a more general-purpose software and sensor strategy. The LOGGER displays the data at the point of data collection in real time.

The LOGGER performs slow sample rate data capture and logging for multiple sensors. The long term goal is to provide a complete 'last mile' software system that connects the world of inexpensive embedded system I/O devices (i.e. I2C, SPI and OneWire) to Internet of Things middleware solutions that are starting to become available. (i.e. Amazon AWS IOT and MQTT)

The LOGGER has a built-in basic integration to MQTT which allows sensor data to be posted to the cloud.

Dragonnorth offers a LOGGER developer's kit that uses a plug and play philosophy for sensors. A variety of simple inexpensive sensor modules are plugged in to a processor module to configure a data logging node targeted at a specific purpose.

The LOGGER acts as an access point and a web server. The data collected is displayed on web pages hosted by the LOGGER itself. This data is also available as XML making it available in machine readable form to computers on the internet.

Supported Sensors		
Part	**Interface**	**Type of Sensor**
DLVR/DLHR	I2C 0x28	Differential Pressure (gas flow, airspeed)
DS18x20	Onewire 0x10 0x22 0x28 0x42	Temperature
DS2415	Onewire 0x24	Time
DS2417	Onewire 0x27	Time
ESP8266	Processor Pin	ADC pin 0-1 volt
MAX11615	I2C 0x33	8 port ADC voltage
MAX31826	Onewire 0x3B	Temperature
MS8607	I2C 0x40 0x76	Temperature, Humidity and Barometric Pressure
SI7006-A20	I2C 0x40	Temperature/Humidity
TCA9539 PCA9535	I2C 0x74 0x75 0x76 0x77	I/O pins including pulse counting and conversion to flow and Kwh
WattNode Modbus	Modbus on I2C pins	Current and other electric consumption parameters
Supported SparkFun Qwiiic sensors		
BME280	I2C 0x77	humidity/pressure/temperature
CCS811	I2C 0x5B	CO2 and Volatile gas
Environmental Combo	I2C 0x5B and 0x77	BME280 and CCS811 on one module
VEML6075	I2C 0x10	Optical UV light
VCNL4040	I2C 0x60	Optical Proximity and UV light sensor
VL53L1X	I2C 0x29	Distance

Suggested Use Cases: Animal cage monitoring, Electric power usage, Environmental Monitoring, Sensor manufacturer demos, Temperature tracking, Water usage etc.