

AirPlug

Enabling Smarter Sockets

Innovation

AirPlug enables profiling energy and power consumption of appliances with good temporal resolution. Most appliances have multiple modes of operation and characterizing these modes and the total overall consumption can generate interesting insights. For instance, refrigerator electricity consumption can be used to understand door opening events, the way compressor switches, peak power consumption, etc... Similar studies with regard to Air Conditioners and Washing Machines gives interesting insights. From a consumer point of view, AirPlug can be used to disambiguate consumption leading to appliance-wide breakup of the utility bill which is not possible in the current scenario.



Features

- Wi-Fi Enabled
- Ease of Installation - Plugs into a 5A/15A socket
- Monitors all electrical parameters and provides ON/OFF control of appliance connected to it
- Configurable default state
- Network Synchronized time
- Remote Scheduling
- Secure data upload to server

Applications

- Electrical profiling of appliances under actual operating conditions. AirPlug can provide immense value to appliance manufacturers who wish to characterize their appliances under real operating conditions where the quality of supply from the grid can be vastly different
- Socket loads
- Energy Audit
- Disaggregation of utility bill



AirPlug monitors the connected appliances at default sampling rate of 2 seconds (it can be configured as required) and transmits following information over a secure Wi-Fi link:

#	Field Name	Tolerance	Sample Data
1	Frequency in Hertz	One tenth of hertz	+49.1
2	RMS voltage in volts	0.20%	+237.62
3	Active Power in Watts	1.50%	+124.9
4	Energy in Watt-Hour	1.50%	+225.863
5	Cost	N/A	+0.033
6	RMS Current in Ampere	1.10%	+0.886
7	Reactive Power in watt	1.50%	+169.585
8	Apparent Power in VoltAmperes	1.50%	+210.616
9	Power Factor	Less than 1%	+0.593
10	Phase angle in degrees	Less than 1%	+53.628

Sample record (single line) data:

49.7 +5188 +237.620 +124.900 +225.863 +0.033 +0.886 +169.585
+210.616 +0.593 +53.628 14:20:58 : 21/08/2010 00:1E:C0:00: DC:
3B: 5011 fridge

Configuration:

1. Press the center blue switch and release it.
2. Now the device will be in AP mode.
3. Check the Wi-Fi list for the corresponding mac ID.(the last few digits of the macaddress stuck on the device).
4. Connect with the device by clicking on to appropriate mac in the wifi list. It may ask for a password which is **radiostudio**.
5. Open the browser enter 192.168.4.1
6. Enter the appropriate SSID and password. Click submit.