Integrating a Raspberry Pi 3 with a hand-made smart meter *by Ruben Munoz*

Becoming more connected with the devices around us thanks to the Internet of Things (IoT) concept enables us to gather more data to analyze to make our lives easier and use the sources more efficiently. Since energy resources are limited and scarce, need to become smarter in our usage. In our current demand-response grid we enable power generation plants to generate power based on the peak demand instead of consumers demand, which is wasteful since excess power is not stored. Smart meters allow for calculation of real time data the power that is being consumed to obtain that data you need to interface with the Smart Meter then send the data to a specific destination. To analyze the data we integrating a raspberry pi 3 to a FIU smart meters the and setting up the mesh network. To show the power consumed we integrated a Raspi 3 with a hand-made smart meter in order to make it flexible to develop any kind of applications for AMI (Advanced Metering Infrastructure) networks. We used an RS232-to-TTL converter to transfer data from the meter to the Raspi. We built an IEEE 802.11s-based mesh network consisting of Raspis and this integrated system. Then, we imitated the process of high-frequency metering data collection and plotted a figure of aggregated meter readings through plot.lyto show that the system is able to report the status of the network to the utility center over the Internet.