

Integration of Smart Home

Data with Simulated Smart Grid

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Introduction

- Data was generated using The Energy Detective (TED 5000)
- Data was exported to then to the RTDS
- Data from the smart home lab was simulated in the smart grid in RTDS.

Objective

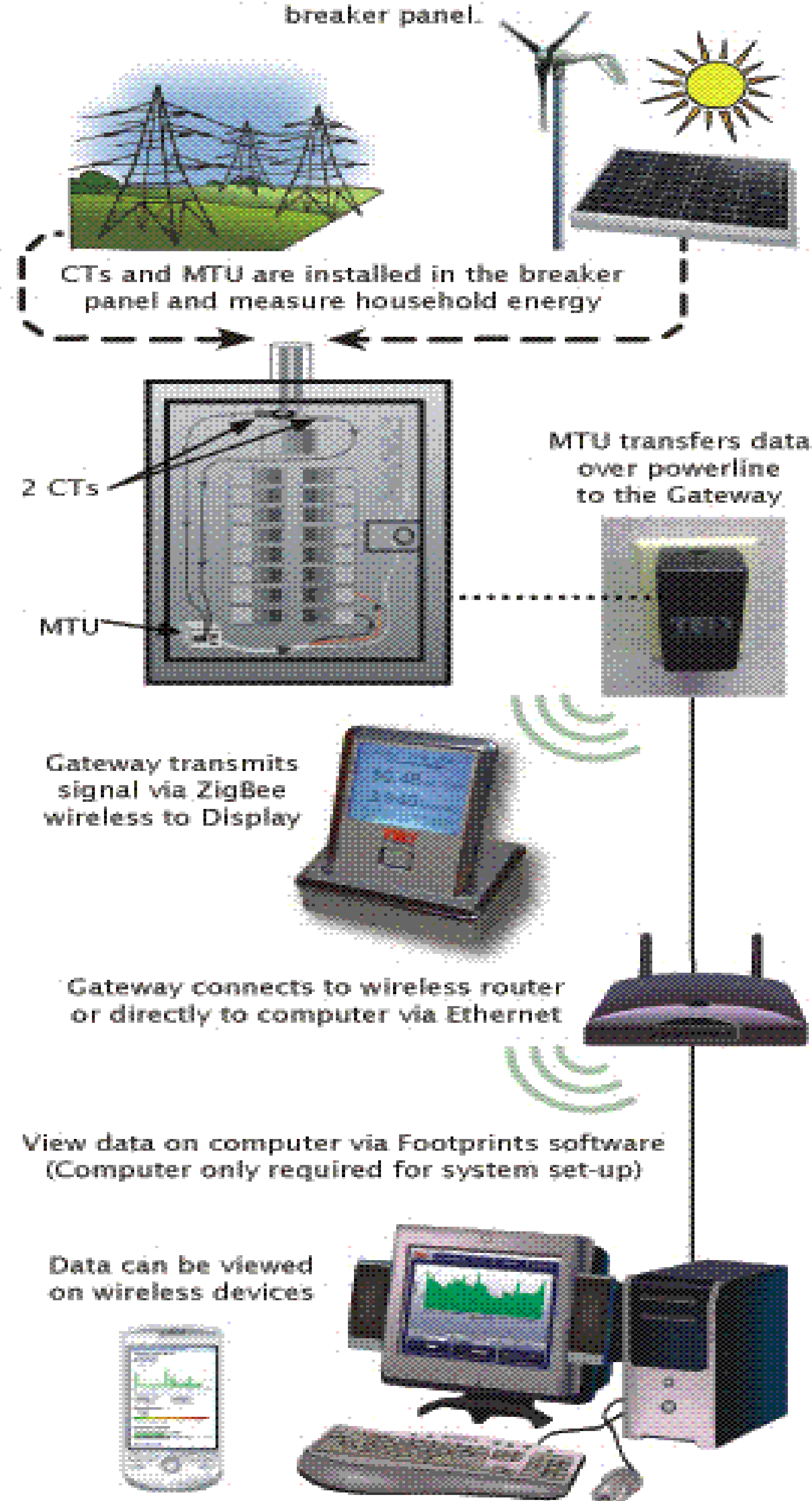
- Objective was to monitors or get real-time data about household energy use.
- Objective was to find a way to get data from TED 500 to the Real Time Digital Stimulator(RTDS)
- Objective was to find some way to use the data and what different things that can be done after getting the data.
- Objective is to model a dynamic load within simulated smart grid with live data from smart home to simulate real-life scenario

Summery

- The data generated by TED was changed in Excel format containing data in every second, for power and voltage measurement.
- Then data was changed into a text file, and scheduler component was used to read this data into the RTDS simulation.
- The data then was used as an output to the scheduler of a component and then as an input to a dynamic load component to control P and Q consume by the load

How TED 5000 Works

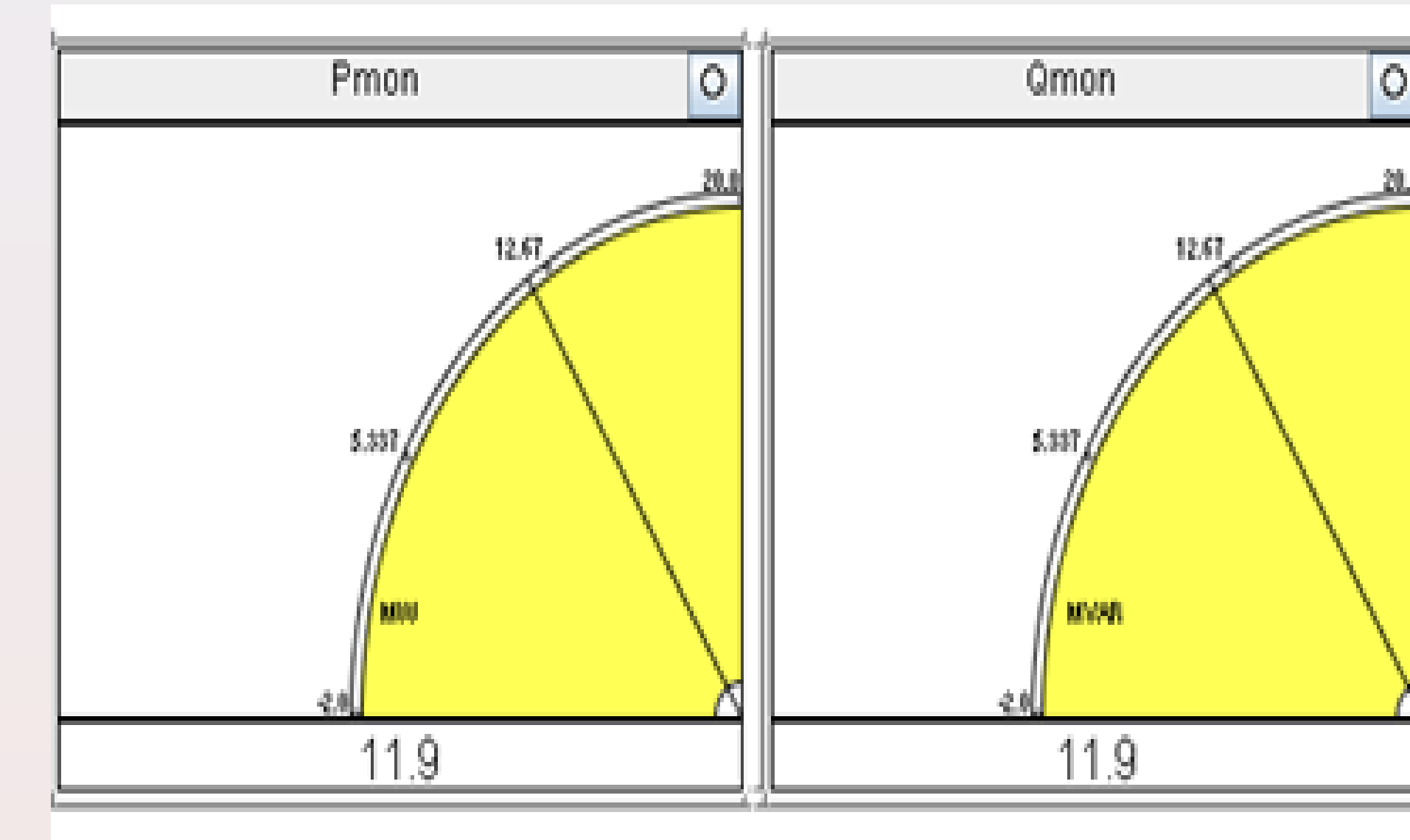
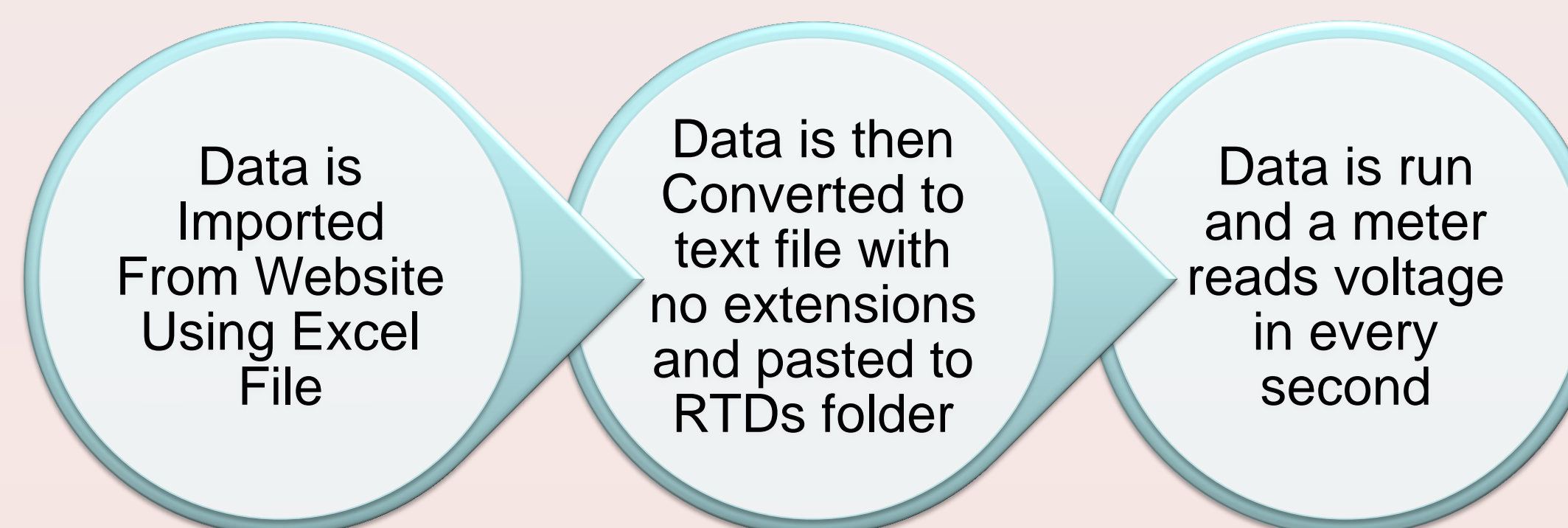
Solar, wind, and/or electric power is sent to a home's breaker panel.



Real Time Digital Simulator (RTDS)

- RTDS is a real time digital stimulator that solves electromagnetic transient simulations in real time and it can interface with voltage, current, and power signal of external device.
- RTDS can simulates smart electric grid dynamics and operational scenarios.

Transferring Data Through Hardware



Future Work

- Transfer data using a python program that access the website gets data and sends the data to RTDS which plays the data all in a 2 second interval
- Work is being continued to do this process automatic and close to real time



Reference

- [1]RTDS technologies, <http://www.rtds.com/index/index.html>
- [2]Energy Inc. TED 5000, www.theenergydetective.com