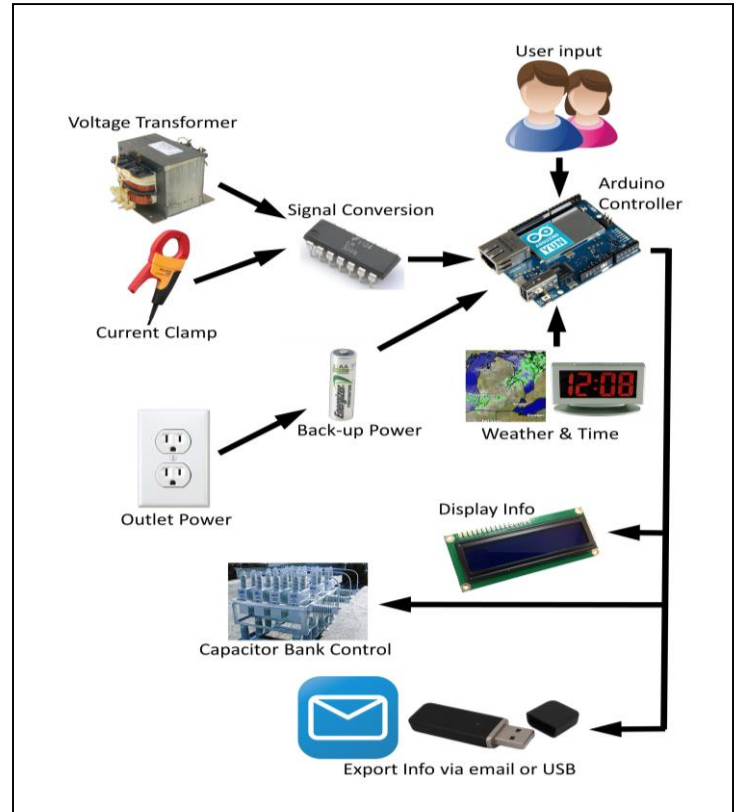


Incoming Power Grid Monitoring Great Lakes Controls & Engineering

Great Lakes Control & Engineering were recently contracted with the task of developing a power monitoring system that would be applied in factories which deal with 3 phase power that could possess voltage imbalances and a poor power factor. Voltage imbalances damage delicate machinery which could be expensive to repair or replace. Poor power factors result in additional charges from power utilities.

Great Lakes Control & Engineering, experimented with the EXTECH 3-Phase Power Analyzer/Datalogger as a solution to the problem. Although the device possesses vast functions for power grid monitoring, it lacks the ability to send notifications upon the detection of a voltage imbalance and log large amounts of data. Team 3 was tasked with developing a device which would replicate the functions of the Extech device and possess additional features to make up for its shortcomings.

To meet the requirements set forth by our sponsor, we designed a device that would sense an analog power signal and log the data into the device's internal memory. Afterwards, the device would compare the logged data with the set voltage and current tolerance values, and email a notification if the data is above the tolerance values. The email notification would also include a time stamp, and the current weather conditions at the factory's location. The device would be equipped with two additional features: a capacitor bank control circuit that would switch on if the detected power factor is below the set tolerance and a backup battery that would be switched on upon the loss of power and send an email notification.



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