

# Power Distribution System

Team Anonymous Kraken

## Problem

Refugees are provided electrical power in their camp, but in order to access it they must tie directly to the power grid. This process is extremely dangerous and has led to both bodily injury and death.

Additionally, there currently is no mechanism to limit the amount of power that people use in the camp. As a result, the grid transformers are overloaded up to 140%.



## Goals

In order to alleviate these problems, Team Anonymous Kraken has two major goals:

Increase Mechanical Safety of Electrical Power Access

Improve Grid Health and Reliability

Simple “Plug-and-Play” Interface

Power Limiting

- Limit Power to 1 kWh per family unit per day
- Power indoor lighting and basic electronics needs

Circuit Breakers and Ground-Fault Detection



## Solution

The Power Distribution System provides users with ports to which they can simply plug into using provided plug adapters. Each of these ports is metered by a microcontroller which monitors the amount of power that is dissipated in the port by way of a current sensor.

The microcontroller shuts off power to the port when the allotted 1 kWh is reached or if too much current is pulled instantaneously. The port status resets at the end of a 24-hr period.

