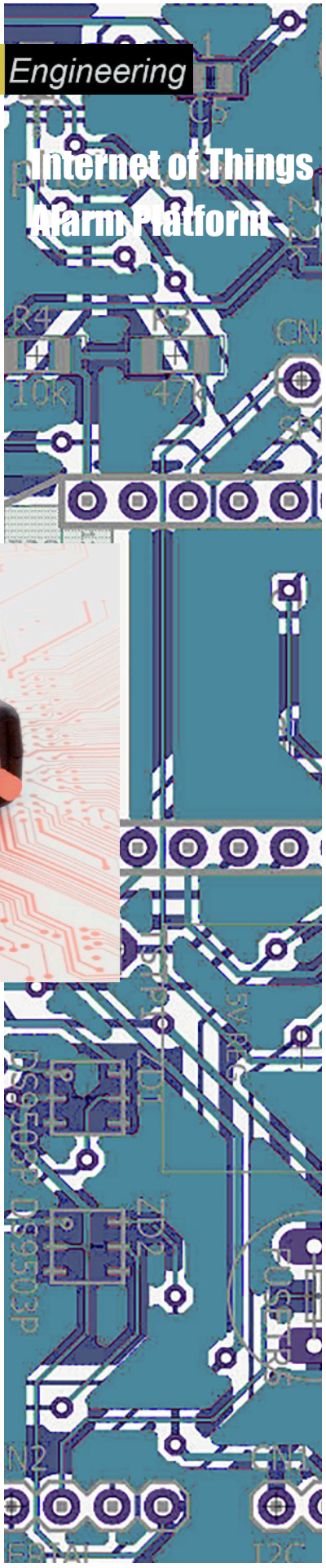
raynham Engineering

Master Remote Alarm



A hardware platform designed as an alarm system core but capable of supporting many different projects.

The circuit board is a simple design with a minimum of components created with EagleCad and manufactured by a custom board house. The IoT microprocessor is a Particle Photon. The board provides connections to the I2C interface and to two independent 1-wire networks. Many different sensor types can be connect to these interfaces.

Two LED's provide system and alarm status and a button provides a hardware reset.

The software system is a comprehensive system than can, by definitions selected in a parameter file, create a master or remote systems. The sensors, such as a magnetic switch or a motion detector are connected to the 1-wire bus through various 1-wire GPIO devices. Many other types of environmental or other types may be connected to the provided interface busses. The software is written entirely in c++ and is designed using c++ objects implemented with c++ classes which model the concept being implemented.

The system is monitored and managed via an iPhone app written in Swift. Communication to the alarm user and to other parties is performed using the Pushover alert notification system. The system, both master and remotes, communicate only to the Particle Cloud via WiFi (Photon) or Cellular (Electron).

All communication between the alarm nodes themselves as well as communication with the iPhone control app is via the Particle cloud. Alarm conditions and many other informational and configuration messages are handle by web-hook calls from the cloud to Pushover. Intercommunication with the iPhone app is done via Particle functions and variables. See https://github.com/dont45/photonMasterRemote/.