BytePoster Master Kit

BytePoster Master Kit (BMK) is a rapid prototyping kit developed for enterprises and researchers to realize Industrial IoT applications, Real Time Asset Monitoring solutions, Environmental Monitoring and other edge computing applications at a faster pace. BMK is a Microsoft Azure certified hardware platform which has an edge computing capability and communicates to cloud vendors in a secure communication using WiFi, BLE or LTE.

Master Kit consists of three modules **Core Board, Sensor Board, Modem Board**; which can be interconnected to each other. Kit can be powered by USB or a Lithium polymer battery.

Core Board:
It has an inbuilt voltage regulator, battery monitoring circuit, Xtensa dual core 32 bit LX6 microprocessor for edge computing and on board WiFi and BLE for communication.

Sensor Board:
Sensor board comprises of Temperature and Humidity sensor, High Precision Temperature sensor, 3D Linear Acceleration sensor, 3D Magnetic sensor, 3D accelerometer, 3D Gyroscope Piezo ZeroPower Microphone, Hi-Sensitivity Ambient Light Sensor and the ability to accept any sensor via I2C, ADC, and SPI protocols.

Modem Board:
Modem board is a pluggable board which contains a CAT1 modem chip to establish real time low power LTE communication specially optimized for M2M and IoT applications.

Getting Started with BMK and MS Azure:
https://catalog.azureiotsolutions.com/details?title=BytePoster-Master-Kit&source=null
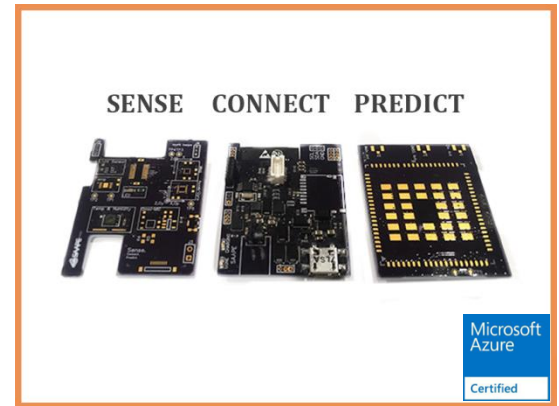
Environmental Monitoring Application:

In this example, there were five Master Kits deployed at different locations of a house and a garage to collect temperature and humidity data every 1 second for a week. As shown in figure 2, BMK was used to measure temperature and humidity and post the data over WiFi to a server containing a database. The graph in fig. 3 shows the temperature and humidity variations of each sensor. From this graph, we can easily determine periodic rise and fall of outside garage (FAA8EC) sensor because of the weather pattern, as opposed to the other four sensors placed in the indoor controlled environment.

These sensors have the capability to alert other systems based on the measurements and as well as the ability to receive commands to customize the thresholds.
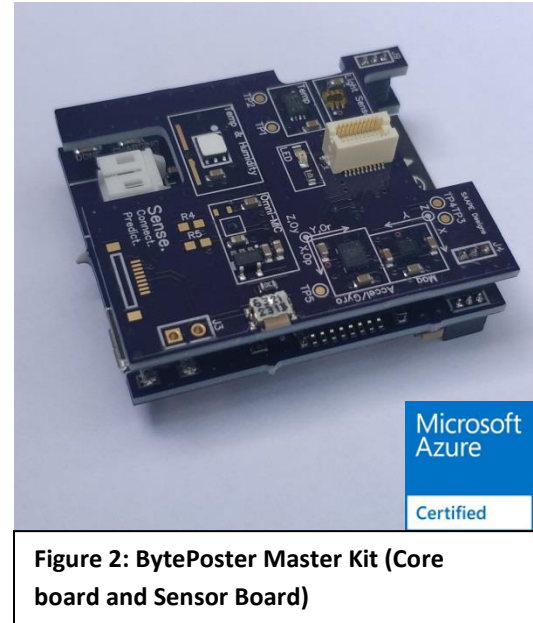
Figure 2: BytePoster Master Kit (Core board and Sensor Board)

Figure 3: Five Master Kits posting temperature and humidity data from different locations such as Kitchen, Server Room, Outside Garage, office room, Conference room.