

## BOR Deployable Payload Remote Sensor Information

### Bill of Materials

Item	Link
Feather M0 Processor	<a href="https://www.adafruit.com/product/2772">https://www.adafruit.com/product/2772</a>
BME280 Sensor	<a href="https://www.adafruit.com/product/2652">https://www.adafruit.com/product/2652</a> <a href="https://www.amazon.com/gp/product/B07KR24P6P/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&amp;psc=1">https://www.amazon.com/gp/product/B07KR24P6P/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&amp;psc=1</a>
XBEE Radio	<a href="https://www.mouser.com/ProductDetail/DIGI/XB24CDMWIT-001?qs=XmMZR4xR0DDCt2cMUSwWHA%3D%3D&amp;countryCode=US&amp;currencyCode=USD">https://www.mouser.com/ProductDetail/DIGI/XB24CDMWIT-001?qs=XmMZR4xR0DDCt2cMUSwWHA%3D%3D&amp;countryCode=US&amp;currencyCode=USD</a>
5 Volt Regulator	MIC5209-5.0 L7805ACV <a href="https://www.mouser.com/ProductDetail/STMicroelectronics/L7805ACV?qs=xv3lWMc77RdYd2PeLwOwYw%3D%3D">https://www.mouser.com/ProductDetail/STMicroelectronics/L7805ACV?qs=xv3lWMc77RdYd2PeLwOwYw%3D%3D</a>

Resistors are 0.1W minimum in either through hole or surface mount. Any source.  
Capacitors are ceramic with 10V minimum voltage rating. Any source.

It is up to you on how you want to assemble it.

### Software

The Arduino IDE is used to program the Feather M0. Go to <https://learn.adafruit.com/adafruit-feather-m0-basic-proto/overview> for instructions on how to set up the Arduino IDE to program the board.

Once the IDE is configured, you need to add a library. Open the Library Manager and search for BME280. Select the library from Adafruit. The program is on the next page.

### XBEE Radio Configuration

The XBEE radio is set for transparent operation.  
NETID is 9999.  
UART is set to 9600 baud. (Should be the default)  
Encryption is off.  
All other settings are kept at default.

```

#include <Wire.h>
#include <Adafruit_Sensor.h>
#include <Adafruit_BME280.h>

Adafruit_BME280 bme;

void setup() {
  Serial.begin(115200);
  while(!Serial);
  Serial1.begin(9600);
  Wire.begin();
  unsigned status = bme.begin(0x76,&Wire);
  Serial.println("starting");
  Serial.println(status);
}

void loop() {
  float t = bme.readTemperature();
  float p = bme.readPressure();
  float h = bme.readHumidity();
  int an = analogRead(0);
  Serial.print(bme.readTemperature());
  Serial.print(",");
  Serial.print(bme.readPressure());
  Serial.print(",");
  Serial.println(bme.readHumidity());
  Serial1.print("1,"); // replace with 2 for the second sensor
  Serial1.print(bme.readTemperature());
  Serial1.print(",");
  Serial1.print(bme.readPressure());
  Serial1.print(",");
  Serial1.print(bme.readHumidity());
  Serial1.print(",");
  Serial1.println((float)an/1024.0 * 3.3);

  delay(2000);
}

```