**3. Design files**

Design files summary.

| **Design file name** | **File type** | **Open source license** | **Location of the file** |
| --- | --- | --- | --- |
| Hub | .ino |  |  |
| config | .h |  |  |
| eGH\_Sensor\_Package | .ino |  |  |
| config | .h |  |  |
| eGreenhousePCBpowerboost | .brd |  |  |
| System\_Layout | .png |  |  |
| eGH Sensor Package222 | .png |  |  |
| eGH Sensor Packagev5 | .png |  |  |
| K30\_1 | .jpg |  |  |
| K30\_Layout | .png |  |  |
| TSL2591 | .jpg |  |  |
| SHT31-D | .jpg |  |  |
|  |  |  |  |

**Hub:** INO file used for deploying the code for the Hub that can upload data into Google Sheets.

**eGH\_Sensor\_Package**: INO file used for deploying the code for the Sensor Package that able to measure sensors, send data to Hub, and log to SD Card.

**config:** H files used for both Hub and eGH\_Sensor\_Package for their properties of the module/platform of each INO file.

**System\_Layout:** PNG file used to show the relationship between eGH\_Sensor\_Package and Hub.

**eGreenhousePCBpowerboost:** BRD file used for layout of the sensor location.

**eGH Sensor Package222:** PNG file used for the top view of the eGreenHouse\_Sensor\_Collector.

**eGH Sensor Packagev5:** PNG file used for the side view of the eGreenHouse\_Sensor\_Collector.

**K30\_1:** JPG file used for the top view of the K30 CO2 sensor.

**K30\_Layout:** JPG file used for indication of wire connection between MO board and K30 CO2 sensor.

**TSL2591:** JPG file used for indication of wire connection between MO board and TSL2591 light sensor.

**SHT31-D:** JPG file used for indication of wire connection between MO board and SHT31-D temperature and humanity sensor.

**4. Bill of materials**

Materials for eGH\_Sensor\_Package

| **Designator** | | **Component** | **Number** | **Cost per unit** | **Total cost** | **Source of materials** | **Material** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Development  Board | | Adafruit Feather M0 with RFM95 LoRa Radio - 900MHz - RadioFruit | 1 | $34.95 | $34.95 | Adafruit | Non-specific |
| Antenna Kit | 900Mhz Antenna Kit - For LoPy, LoRa, etc | | 1 | $12.75 | $12.75 | Adafruit | Non-specific |
| Antenna Connector | uFL SMT Antenna Connector | | 1 | $0.75 | $0.75 | Adafruit | Non-specific |
|  | |  |  |  |  |  |  |
| Data Logger  and RTC | | Adalogger FeatherWing - RTC + SD Add-on For All Feather Boards | 1 | $8.95 | $8.95 | Adafruit | Non-specific |
| Micro SD Card | | 16 GB MicroSD Card | 1 | $7.00 | $7.00 | Amazon | Non-specific |
| CO2 Sensor | | K30 10,000ppm CO2 Sensor | 1 | $85.00 \*\*\* | $85.00 | CO2Meter | Non-specific |
| Light Sensor | | Adafruit TSL2591 High Dynamic Range Digital Light Sensor | 1 | $6.95 | $6.95 | Adafruit | Non-specific |
| Temperature  and Humidity  Sensor | | Adafruit Sensirion SHT31-D - Temperature & Humidity Sensor | 1 | $13.95 | $13.95 | Adafruit | Non-specific |
| Sensor PCB | | Custom Component | 1 |  |  |  |  |
| Coin Cell Battery | |  | 1 |  |  | Adafruit | Non-specific |
| Board Headers | | Stacking Headers for Feather - 12-pin and 16-pin female headers | 1 | $1.25 | $1.25 | Adafruit | Non-specific |
| Board Headers | | Short Feather Male Headers - 12-pin and 16-pin Male Header Set | 1 | $0.50 | $0.50 | Adafruit | Non-specific |

Pricing Notes

*\* price will vary with source*

*\*\* optional*

*\*\*\* price will vary with capacity*

Additional equipment that may be needed:

SLA 3D printer, such as Form 2, to print the sensor adapter

Soldering station for soldering sensor and other parts to PCB

Materials for Hub

| **Designator** | **Component** | **Number** | **Cost per unit** | **Total cost** | **Source of materials** | **Material** |
| --- | --- | --- | --- | --- | --- | --- |
| Development  Board | Adafruit Feather M0 with RFM95 LoRa Radio - 900MHz - RadioFruit | 1 | $34.95 | $34.95 | Adafruit | Non-specific |
| Antenna Kit | 900Mhz Antenna Kit - For LoPy, LoRa, etc | 1 | $12.75 | $12.75 | Adafruit | Non-specific |
| Antenna Connector | uFL SMT Antenna Connector | 1 | $0.75 | $0.75 | Adafruit | Non-specific |
| Ethernet Connector | Adafruit Ethernet FeatherWing | 1 | $19.95 | $19.95 | Adafruit | Non-specific |
| Battery | Lithium Ion Battery Pack - 3.7V 6600mAh | 1 | $29.50 | $29.50 | Adafruit | Ion |
| Board Headers | Short Headers Kit for Feather - 12-pin + 16-pin Female Headers | 1 | $1.50 | $1.50 | Adafruit | Non-specific |
| Board Headers | Short Feather Male Headers - 12-pin and 16-pin Male Header Set | 1 | $0.50 | $0.50 | Adafruit | Non-specific |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Pricing Notes

*\* price will vary with source*

*\*\* optional*

*\*\*\* price will vary with capacity*

Additional equipment that may be needed:

SLA 3D printer, such as Form 2, to print the sensor adapter

Soldering station for soldering sensor and other parts to PCB