

SPARROW BILL OF MATERIALS (BOM)

| System | Item | Description | Qty | Tested/Recommended |
|----------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brain | NVIDIA Jetson Orin Nano Super Developer Kit | AI Edge Compute Device | 1 | NVIDIA Jetson Orin Nano Super Developer Kit |
| | 2TB PCIe Gen 4 NVMe M.2 Internal Solid State Hard Drive | 2TB SSD Drive | 1 | Samsung 980 PRO SSD MZ-V8P2T0CW |
| | Pi 3 Click Shield | Pi 3 Click Shield converts the GPIO pins on the NVIDIA Jetson Orin Nano into two mikroBUS™ sockets | 1 | MIKROE-2756 |
| | mikroBUS Shuttle | Mikroe Shuttle is a small add-on board, which is intended to be used with Shuttle click, in order to expand the mikroBUS™ with additional stacking options. | 4 | MIKROE-2882 |
| | mikroBUS Shuttle Click | Shuttle click is a mikroBUS socket expansion board, which provides an easy and elegant solution for stacking up to four click boards on a single mikroBUS | 2 | MIKROE-2880 |
| | DS3231M I2C Board | Real-time clock module which has an extremely low power consumption, allowing it to be used with a single button cell battery, for an extended period of time | 1 | MIKROE-3770 |
| | BME688 I2C Board | Compact add-on board that contains a four-in-one environmental measurement solution | 1 | MIKROE-4893 |
| | SHTC3 I2C Board | The SHTC3 sensors offers the complete measurement system: capacitive RH sensor, bandgap thermal sensor, analog and digital data processing, and the I2C communication interface | 1 | MIKROE-3331 |
| | I2C Relay Board | Relay board featuring at least one SRD-5VDC-SL-C relays | 1 | MIKROE-3357 |
| Power | 24V 15A MPPT Solar Charge Controller | 24V 15A (at least) MPPT solar charge controller with load output control and usb interface | 1 | Victron Smart Solar MPPT 100V/20A SCC110020160R |
| | USB Solar Charge Controller Interface | Direct to USB interface connection to devices with a USB port | 1 | Victron Energy VE.Direct to USB interface ASS030530010 |
| | 100 Watt Solar Panels Monocrystalline Solar Panel | 100 Watt Monocrystalline Solar Panel (at least 2 required working in a 24V matrix) | 2 | ECO-WORTHY 100 Watt Solar Panel US-L02M100-B-1 |
| | 10AWG Solar Extension Cable 30A/1000V DC, IP67 | Cables that go from the Solar Panels to the Solar Charge Controller (overall length subject to installation) | 1 | ECO-WORTHY 10FT 10AWG Solar Extension Cable 30A/1000V DC, IP67 Waterproof with Compatible Quick Connectors |
| | 45in Solar Panel Mount Brackets | 45in Solar Panel Mount Brackets, with Foldable Tilt Legs Suitable for 2pcs 100W | 1 | ECO-WORTHY 45in Solar Panel Mount Brackets US-L03TYNS1Z4-1 |
| | 24V 50Ah or 100Ah LifePo4 Battery | 24V 50Ah 100Ah LifePo4 Battery (capacity depending on deployment conditions/location) | 1 | ECO-WORTHY 24V 100Ah LifePo4 Lithium Battery US-L13070402010-1 |
| | SAE to O Ring 10AWG Battery Connector Terminal | Fused Battery Cable that goes from the Battery (O-Ring) to the Solar Controller Battery Cable (SAE) | 1 | iGreely 10 Gauge Wire SAE to O Ring Terminal |
| | 10AWG Solar Panel Connector Cable | Solar Controller Battery Cable (SAE), 10AWG SAE to PV Male & Female Adapter (overall length subject to installation, see assembly instructions on how to modify for this use case) | 1 | iGreely Solar Panel Connector Cable, 10AWG SAE to Male & Female Adapter |
| Build | Outdoor Weatherproof IP65 Electrical Junction Box | Outdoor Weatherproof IP65 Electrical Junction Box, Ventilated Design, Use with Mounting Panel & Hinged Cover. Size: 17"x13"x7" | 1 | ANIMACYN Electrical Junction Box, Ventilated Design, Cable Grommets, Indoor/Outdoor Use with Mounting Panel & Hinged Cover. Waterproof IP 65. (Grey Cover, 17.7"x13.7"x7.9") |
| | 18AWG Speaker Wire (Black+Red) | 18AWG Copper Clad Aluminum Speaker Wire (Black + Red) | 1 | GEARIT GEARIT Speaker Wire 18 Gauge, Speaker Cable 18AWG |
| | Displayport Headless EDID Dongle | Displayport monitor emulator required to guarantee image output during remote control of Jetson unit | 1 | BKFK dp Dummy Plug - Display to hdmi Adapter, Luna Display Virtual Window for Home-edid Emulator-Dummy, displayport Headless dummie dongle(DP-1P) |
| | 5.5mm x 2.5mm 90 Degree Right Angle DC Barrel Male Plug Jack | 5.5mm x 2.5mm 90 Degree Right Angle DC Barrel Plug to Power the Jetson Unit | 1 | Fancasee DC Power Pigtail Cable, 10-Pack 5.5mm x 2.5mm 90 US-CAB-65 |
| | 5.5mm x 2.1mm DC Female Plug to Bare Wire | Starlink Mini Power DC Female Plug | 1 | Tonton 16AWG DC Power Pigtails Cable - 3.3FT, Pure Copper, Orange - 5.5mm x 2.1mm DC Female Plug to Bare Wire Open End |
| | Zip Ties Assorted Size | Zip Ties Assorted Size, Double Sided Toothed,Heavy Duty Cable Wire Ties | 1 | JIANYANG Zip Ties Assorted Size, 8+12+14+18 Inch |
| | Connection Terminal for 3 Wires. Lever action. | We need 2 for each build, they come in boxes with larger quantities, any brand of lever action solderless wire connectors will work. | 1 | Wago 221-413 Connection terminal 3 wires 0.2 to 4 mm² with control lever, transparent compact model, Box of 50 |
| | 10FT USB A to Micro USB Cable | Long Micro USB cable for the Audiomoth | 1 | MOVOYEE Long 10FT USB to Micro USB Cable |
| | PG7 PG9 PG11 PG13.5 PG16 PG19 Weatherproof Cable Gland Connectors | Weatherproof Cable Gland Connectors to route the cables going in and out of the electrical Junction Box | 1 | LISTENJIALE Cable Gland Waterproof 50 pcs |
| Network | STARLINK Mini Kit | STARLINK Mini Kit - High-Speed Portable Internet for Remote and Mobile Use | 1 | Starlink Mini Antenna Kit |
| | Starlink Ethernet Adapter RJ45 Coupler Waterproof Compatible | Weatherproof Starlink Compatible RJ45 Coupler | 1 | EAZUSE RJ45 Starlink Ethernet Adapter Gen 3/Mini |
| | Cat 6 Outdoor Ethernet Cable from Jetson to Starlink | Cat 6 Outdoor Ethernet Cable, 24AWG 10Gbps Waterproof Direct Burial LLDPE UV Jacket (overall length subject to installation) | 1 | VOIETOLT Cat 6 Outdoor Ethernet Cable 30 ft, 24AWG 10Gbps Cat6 Cable Cord Waterproof Direct Burial LLDPE UV Jacket |
| | 2X WiFi Antenna with MHF4/PEX to RP-SMA Pigtail Antenna WiFi Cable | Pair of 6dBi 2.4GHz 5GHz Dual Band WiFi RP-SMA Male Antenna+2x 35CM RP-SMA IPEX MHF4 Pigtail Cable for M.2 NGFF WiFi WLAN Card | 1 | HIGHFINE 2 x 6dBi 2.4GHz 5GHz Dual Band WiFi RP-SMA Male Antenna+2x 35CM RP-SMA IPEX MHF4 Pigtail Cable for M.2 NGFF WiFi WLAN Card |
| Optional | 10dBi Long Range Outdoor WiFi Fiberglass Antenna | Optional upgrade to improve overall WiFi Range. **IMPORTANT NOTE: MHF4/PEX to RP-SMA Pigtail Antenna WiFi Cable is REQUIRED and must be purchased separately** | 2 | eifagur 10dBi Long Range Dual Band WiFi 2.4GHz 5GHz Fiberglass Antenna |
| Audio | AudioMoth Dev Case | Weatherproof AudioMoth Case | 1 | AudioMoth Dev Case |
| | AudioMoth Dev Board | AudioMoth Dev board | 1 | AudioMoth Dev Board |
| Camera | 2.4Ghz Solar WiFi Security Camera | Solar Weatherproof WiFi Cameras to be used as the SPARROW Camera Traps (you can use up to 150 cams per SPARROW main unit) | 1 | Reolink Argus Eco+ |

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