Bill of Materials (BOM)

SensorBox v1.0 — $2,015.69

The complete SensorBox as shown here will cost you around $2,000 (not counting tools). But you can also get started considerably cheaper, with a NVIDIA Jetson Nano (same form factor), a low cost power bank and just the cameras.

Sensors & Processing and Display — $1,455.86

Embedded Processor — $502.98

	Item	Source	Qty	Price
	NVIDIA Jetson Xavier NX Dev. Kit	Amazon	1	$399.00
	Micro SD Card	Amazon	1	$23.99
	NVMe SSD Drive	Amazon	1	$79.99

Microcontroller — $24.95

	Item	Source	Qty	Price
	SparkFun RedBoard Turbo Dev. Board Arduino Zero	SparkFun	1	$24.95

Sensors — $103.35

GNSS (Global Navigation Satellite System)

	Item	Source	Qty	Price
	SparkFun NEO-M9N GPS	SparkFun	1	$69.95

IMU (Inertial Measurement Unit)

	Item	Source	Qty	Price
	SparkFun ICM-20948 9DoF IMU	SparkFun	1	$16.95

Pressure (air)

	Item	Source	Qty	Price
	SparkFun LPS25HB Pressure Sensor	SparkFun	1	$9.95

Temperature (internal)
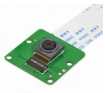
	Item	Source	Qty	Price
	SparkFun TMP102 Temperature Sensor	SparkFun	1	$6.50

Vision Sensors · $612.82

Stereo RGB (rolling-shutter) Cameras with IMU

	Arducam Sony IMX219 Camera Module	UCTRONICS	2	$19.99
	FPC 15 pin Ribbon Cables	Amazon	1	$5.99
	SparkFun LSM9DS1 9DoF IMU	SparkFun	2	$15.95
	SparkFun Qwiic Adapter	SparkFun	2	$1.50

RGB-D Camera with IMU

	Intel Realsense D435i	Intel	1	$199.00

Thermal Camera
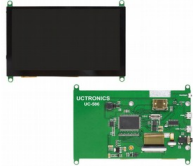
	FLIR Lepton 3.5	GroupGets	1	$199.00
	GroupGets PureThermal 2	GroupGets	1	$99.00

Ultrasonic Range Finder

	SparkFun Ultrasonic Range Finder	SparkFun	1	$34.95

Power · $163.77

	USB-C Charger	Amazon	1	$25.99
	Poweradd USB-C Power Bank	Amazon	1	$82.99
	SparkFun USB-C Power Delivery Board	SparkFun	1	$24.95
	Zio INA219 Current and Voltage Sensor	SparkFun	1	$7.95

	Power Button	SparkFun	2	$5.95
	5x DC Barrel Jack Connector 5.5mm x 2.5mm	Amazon	1	$9.99

Display | | | $47.99

	UCTRONICS 5 Inch Touch Screen Display	UCTRONICS	1	$47.99

3D Print | | | $129.27

Filaments | | | $49.98

	PETG Blue 1.75mm (1kg)	MatterHackers	1	$24.99
	PETG Grey 1.75mm (1kg)	MatterHackers	1	$24.99

Post-Processing | | | $79.29

	Super Glue	Amazon	1	$7.99
	Sandpaper 150	Ace Hardware	1	$4.59
	Sandpaper 400	Ace Hardware	1	$7.59
	Wet Sandpaper 1500	Ace Hardware	1	$7.59
	Bondo Filler	Amazon	1	$8.83
	Scraper	Amazon	1	$4.65

	Automotive Primer and Filler	Amazon	1	$13.53
	Automotive Silver Matt Spray	Amazon	1	$12.60
	Automotive Clear Matt Spray	Amazon	1	$11.92

Assembly $430.56

	100x M3x6 Screws	Amazon	1	$8.19
	100x M3x5 Screws	Amazon	1	$7.49
	25x M2x6 Screws	Amazon	1	$6.49
	100x M2x4 Screws	Amazon	1	$7.99
	100x M3x6x4.5 Threaded Heat Inserts	Amazon	1	$9.79
	100x M3x4x5 Threaded Heat Inserts	Amazon	1	$7.91
	100x M2x4x3.5 Threaded Heat Inserts	Amazon	1	$7.91
	250x M2/M2/M3 Threaded Heat Inserts	Amazon	1	$15.88
	Self-Adhesive Cleat Pads	ACE Hardware	1	$4.99
	8x 14inch Cable Ties	ACE Hardware	1	$3.59
	Break Away Headers	SparkFun	1	$1.50

	40x 2 pin Screw Terminal Block Connector	Amazon	1	$6.99
	SparkFun Qwicc Cable Kit	SparkFun	1	$7.95
	SparkFun Qwicc Cable 50mm	SparkFun	1	$0.95
	22 AWG Wires	SparkFun	1	$16.95
	Heat Shrink Tubes	Amazon	1	$7.99
	100x Quick Disconnect Terminal Connector	Amazon	1	$7.75
	Duck Tape	Amazon	1	$5.93
	Double-Sided Tape	Amazon	1	$8.99
	5x USB 3.0 direct-through Keystone Jacks	Amazon	1	$9.90
	HDMI direct-through Keystone Jack	Amazon	1	$6.24
	2x USB-C direct-through Keystone Jacks	Amazon	1	$9.90

	PC Computer Air Filter	Amazon	1	$8.99
	2x HDMI Male to Female Cable	Amazon	1	$7.99
	90° Micro USB to USB Cable	Amazon	2	$6.49
	DisplayPort Male to HDMI Female Cable	Amazon	1	$13.99
	HDMI Male to Male Cable	Amazon	1	$7.36
	Micro USB to USB Cable	Amazon	2	$6.49
	USB-C Male to Male 100W Cable	Amazon	1	$9.99
	USB-C Male to Male 100W Cable	Amazon	1	$9.99
	Long USB Cable	Amazon	1	$10.99
	Long HDMI Cable	Amazon	1	$9.99
	HDMI Monitor	Amazon	1	$93.99
	Dual USB & Bluetooth Keyboard and Mouse	Amazon	1	$47.99

30x Circuit Board Jumper Caps	Amazon	1	$5.08
Jumper Wires	Amazon	1	$6.98

Tools — **$998.38**

Caliper	Amazon	1	$8.99
3D Printer	Prusa Research	1	$749.00
Carving Craft Knife	Amazon	1	$9.99
Needle File Set	Amazon	1	$16.05
Sander	Amazon	1	$36.38
Sanding Discs	Amazon	1	$14.99
Soldering Iron	Amazon	1	$20.99
Helping Hands	Amazon	1	$22.99

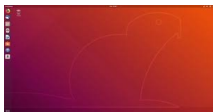|				
	Solder	SparkFun	1	$7.95
	Wire Strippers	SparkFun	1	$12.95
	Crimper	Amazon	1	$22.29
	Heat Gun	Amazon	1	$12.99
	Allen Keys	Amazon	1	$15.29
	Screwdrivers	Amazon	1	$18.69
	Precision Screwdrivers	Amazon	1	$13.89
	Multimeter	SparkFun	1	$14.95

Computers

Ubuntu 18 Host Computer
preferable with a NVIDIA graphics card

Windows 10 Computer
only for use with SparkFun NEO-M9N GPS