

BILL OF MATERIALS - Projects

Syntax: Numbers within brackets are costs for either spares or extras transferable into other projects.
 (a) - Amazon; (R) - Robu.in; (AE) - AliExpress; (d) - Diy-India; (rk) - Robokits.co.in

3D Printer + Mini-projects with leftover spares:

Components	Cost
Electronic:	
1. 3D Printer Kit: (a)	3000
a. Arduino Mega	
b. Ramps 1.4	
c. 5 x a4988 Stepper Motor Driver	
d. LCD and controller	
2. Heatbed (a)	500
3. Kapton Tape (a)	200
4. Bowden Extruder block (r)	450
5. Hot end (a)	670
6. Bowden Tube (a)	225
7. Motors:	
a. X – axis + extruder: NEMA 17 4.4kg-cm (r)	1180
b. Y– axis: Dual shaft NEMA 23 (r)	1312
c. Z – axis: NEMA 17 5.5kg-cm (a)	1700
d. Nema 17 2.5kg (a)	(310)
8. Endstops (r)	600
9. DRV8825 NEMA 23 Driver (r)	160 + (160)
10. PSU 12V 30A (a)	1200
11. Fans (r)	320 + (80)
12. Thermistor (a)	(205)
Electronics Total:	11537 + (735)
Structural:	
1. Aluminium extrusion (11m) (r)	2660 + (1520)
2. Triangle Brackets * 8 (r)	400
3. L –Brackets * 20 (a)	1020
4. T – Slot Slides (a)	400 + (400)
5. Joining plate ®	300
6. T-shape bracket (r)	600
7. Bed Leveling (a)	550
8. M3 bolts ®	180 + (100)
9. M6 bolts(a)	550
10. Corrugated Wire Tubing (a)	(400)
Structural Total:	6660 + (2420)
Movement:	
1. Y – axis:	
a. Couplers (6.35mm, 8mm) * 2	
b. 8mm 500mm Smooth rods * 3 (part of 6)	
c. Ball bearings 8mm * 6 (part of 10)	
d. 8mm bore 6mm GT2 Timing Pulleys 20T* 4	
e. 6mm GT2 Belt	
f. 8mm Linear Bearings * 2 (part of 12)	
2. X – axis:	
a. 8mm 5mm Smooth rods * 2 (part of 6)	
b. Linear Bearings * 2 (part of 12)	

<ul style="list-style-type: none"> c. 5mm bore 6mm GT2 Pulley 20T (For motor side) d. 8mm bore 6mm GT2 Pulley 20T (For opposing Side) e. 8mm Ball bearings * 2 f. 6mm GT2 Belt 	
3. Z – Axis:	
<ul style="list-style-type: none"> a. Couplers (5mm, 8mm) * 2 b. 8mm Lead screw 600mm * 2 c. 8mm Smooth Rods 600mm * 4 d. 8mm Linear Bearings * 4 (part of 12) e. Ball bearings * 2 	
Packages:	
1. Couplers:	
a. (5mm, 8mm) * 2 (r)	300
b. (6.35mm, 8mm) * 2 (r)	180
2. Lead Screw 600mm 8mm * 2 (r)	1500
3. Smooth Rods:	
a. 8mm 600mm * 8 (a)	1000 + (1000)
b. 8mm 500mm * 6 (a)	650 + (950)
4. Linear Bearings * 12 (a)	250 + (500)
5. Ball bearings * 30 (a)	350 + (700)
6. GT2 Timing Pulley and belt:	
a. 8mm bore 20T * 8 (6 + 2) (a)	690 + (230)
b. 5mm bore 20T * 4 (a)	150+ (450)
c. 5M Timing Belt (a)	270 + (180)
d. GT2 200mm loop (a)	(300)
e. 60 Tooth GT2 Pulley * 2 (a)	(800)
Movement Total:	5340 + (5110)
Filaments Total (Red + Orange + Black + Grey + White)	4600
Predicted Cost	23000 - 30000
Basic Total	23517
Spares + Transferable Parts Costs	(8285)
Total	(31552)
Basic costs on Robu.in	10142
Extra/Spare Costs on Robu.in	(1860)
Total Costs on Robu.in	(12002)
Basic costs on Amazon	13375
Filament Cost	4600
Total Necessary Costs on Amazon	17975
Extra/Spare Costs on Amazon	(6325)
Total Costs on Amazon	(24300)

VR Headset:

Components	Cost
MIPI 2.9” 2K Screen (ae)	12901
Arduino Due (r)	3250
MPU9250 9-axis sensor(r)	650
AliExpress	12901
Robu.in	3900
Predicted Cost:	25000
Total Cost	16801 + 3D printed parts

Sim Wheel:

Components	Cost
M8 Threaded rod 1000mm * 5 (d)	750
Smooth Rod (a)	Covered in Extras for 3D Printer
Copper Tape (a)	446
Ball Bearings (a)	Covered in Extras for 3D Printer
RS775 12/24V DC 10k-20k rpm (a)	350
Optical Encoder 600ppr (r)	1520
GT2 60 Tooth + Belt Loop (a)	Covered in Extras for 3D Printer
Duoble BTS7960 (r)	900
Rig: PSU 24v 15a (a)	1650
STM32F407VET6 Development Board (rk)	1711
Amazon	2446
Diy-India	750
Robu	2420
Robokits.co.in	1711
Total additional costs above parts from 3D Printer	7327

Racing + flight Sim other components:

Components	Cost
Sliding Potentiometer (a)	150
Limit switches * 20 (a) (also act as spares for 3d printer)	560
40kg Load Cell (a)	760
Springs (locally bought)	Estimate: 600
Fibro elastomers (locally bought)	300
Amazon total	1470
Total	2370

Keyboard Type Projects (Ergonomic Keyboard + StreamDeck + MIDI):

Components	Cost
Outemo Blue Mechanical Switches 60g * 200 (ae)	3200

Bee keycaps (ae)	2400
Arduino Pro Micro * 5 (r)	3000
TTRS 3.5mm female module * 2 (r)	150
Micro USB port Female (r)	150
1n4148 diode * 300 (a) (also for simulator)	400
Aliexpress Total	5600
Robu.in Total	3300
Amazon.in	400
Total	9300

Flying (Changed from Drone to Model F22 Raptor)

Components	Costs
6 Channel Transmitter + Receiver (r)	4500
Brushless Motors (CW + CCW) (r)	2080
Electronic Speed Controllers (Multicopter) * 2 (r)	2140
3300mAh 3S LiPO Battery * 2 (r)	5200
Micro Servo motors * 10 (a)	1400
Robu Total	13920
Amazon	1400
Total	15320

Additional Electronics Tools Costs:

Components	Cost
Dupont Connector Set (r)	550
Push Buttons *40 (r)	400
Shaft Potentiometer * 21 (r)	553
Wire Ferrules (a)	360
M6 – M12 Tap Set (a)	500
Heat Shrink Tubing (a)	600
Solder kit (a)	490
Robu.in costs	1503
Amazon	1950
Total	3453

Total Costs:

Platform	Totals
Amazon.in	31966
Robu.in	37045
Robu Shipping	1020
AliExpress	18501
Aliexpress Import Duties	2000
Diy-India	750
Robokits	1711
Total	91993

Other projects not yet planned: Electric Skateboard (estimate: 8000),