Department of Optoelectronics, University of Kerala, Kariavattom, Thiruvananthapuram, Kerala, India – 695581, Ph: 91 471 2308167
Quotation Notice
OPTO/P-03/2020-21

Quotations are invited for the purchase of the following item in the Department

1) Microcontroller board- Preferable Make: Arduino Mega 2560
Features: microcontroller board based on the ATmega2560 with following specificatios:
54 digital input/output pins
16 analog inputs
4 UARTs (hardware serial ports)
16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header a reset button.

2) DMOS Micro stepping Driver with Translator And Over current Protection
Features:
Low RDS(ON) outputs, Automatic current decay mode detection/selection, Mixed and Slow current decay modes, Synchronous rectification for low power dissipation Internal UVLO, Crossover-current protection, 3.3 and 5 V compatible logic supply, Thermal shutdown circuitry, Short-to-ground protection, Shorted load protection, selectable step modes: full, 1/2, 1/4, 1/8, and 1/16

3) Graphic Smart Controller
Features:
SD-Card reader, a rotary encoder, 128 x 64 dot matrix LCD display is needed
"smart, adapter" to connect Ramps board
Plug and play on the RAMPS.

4) Raspberry Pi 4 Model B
Features:
1. Hardware
Quad core 64-bit ARM-Cortex A72 running at 1.5GHz
1, 2 and 4 Gigabyte LPDDR4 RAM options
H.265 (HEVC) hardware decode (up to 4Kp60)
H.264 hardware decode (up to 1080p60)
Video Core VI 3D Graphics
Supports dual HDMI display output up to 4Kp60 2.2
2. Interfaces
802.11 b/g/n/ac Wireless LAN
Bluetooth 5.0 with BLE
1x SD Card, 2x micro-HDMI ports supporting dual displays up to 4Kp60 resolution
2x USB2 ports, 2x USB3 ports, 1x Gigabit Ethernet port (supports PoE with add-on PoE HAT), 1x Raspberry Pi camera port (2-lane MIPI CSI), 1x Raspberry Pi display port (2-lane MIPI DSI), 28x user GPIO supporting various interface options: – Up to 6x UART – Up to 6x I2C – Up to 5x SPI – 1x SDIO interface – 1x DPI (Parallel RGB Display) – 1x PCM – Up to 2x PWM channels – Up to 3x GPCLK outputs 6 Release 1 Raspberry Pi 4 Model B Datasheet

3. Software
ARMv8 Instruction Set
Mature Linux software stack
GPU functions using standard APIs should be available

5) Raspberry Pi 7" Touch Screen Display
Features:
• Screen Dimensions: 194mm x 110mm x 20mm (including standoffs)
• Viewable screen size: 155mm x 86mm
• Screen Resolution 800 x 480 pixels
• 10 finger capacitive touch.

6) Camera of Raspberry –Pi
Features:
• High Definition camera module compatible with all Raspberry Pi models is needed.
• Provides high sensitivity, low crosstalk and low noise image capture is needed
• Pi board via the CSI connector designed specifically for interfacing to cameras.
• The CSI bus is capable of extremely high data rates, and it exclusively carries pixel data to the processor.

7) LED Indicator
Features:
• Operating temperature (TOP): -55°C to +70°C.
• Storage temperature (TSTG): -55°C to +100°C.
• The Led indicator is available in bright or black chrome reflector.
• The 7th digit has to be coded with 0 or 1.
• Bright chrome = 0
• Black chrome = 1

8) 3D Printer Power Module High Power 210A MOSFET Module for 3D Printer with Connection Cable
Features:
• Based on powerful MOSFET HA210N06
• Dimensions: 60x50mm.
• Mounting holes: 3.2mm diameter, for M3 screws.
• Distance between holes: 54x43mm
• Very powerful MOSFET to withstand higher current than normal RAMPS or other 3D Printer controller can handle.
• Voltage: 12V-24V
• Maximum current with active cooling: 210A
• Current: 50-80A safe for prolonged times without active cooling.

9) 1.75mm V6 Hotend Bowden Extruder, V6 Extruder All metal J-head Hotend Full Set, 0.5mm Nozzle
Features:
• 1 piece V6 Hotend with a nozzle
• 1 piece blue fan duct(injection moduled PC)
• 4 pieces m3 screws to attach the fan to the fan duct

- 1 piece fan (12v)
- 1 piece 12v 40w Heater
- 1 piece 100K NTC thermistor

10) 3D Printer 5A Limit Switch Endstop with 1m Long Cable
Features:
- Voltage Rating : 125 VAC
- Current Rating :5 A
- Dimensions in mm (LxWxH) :20x15x6

11) Power supply
Features:
- Input Voltage 100-240 VAC, 50/60 Hz
- Output voltage 24 VDC, ±2%
- Maximum load 35W: 1.46 A 60W: 2.5 A 100W: 4.16A
- Connection type Flying leads
- Operating Temperature -25 °C to +50 °C (-13 °F to +122 °F)

12) Power supply (12V 20A 240W DC Switching Switch Power Supply for LED Strip)
Features:
- AC input 110/220V 15 percent tolerance
- DC output - 12V with 20A max output
- Output over voltage protection
- Over current protection
- Short circuit protection
- Surge Protected Outputs
- Output LED indicator
- Cooling FAN is needed

13) 5 Meters GT2 6MM Open Timing Belt + 4 Pcs GT2 Timing Pulley 20 Teeth 5MM Bore
Features:
- Colour : multi
- Ean : 7426883931195
- Height : 5 centimetres Length : 8 centimetres
- Manufacturer Series Number : GT-10018
- Model Number : GT-10018

14) NEMA 17 4.2 Kg-cm Bipolar Stepper Motor for CNC Robotics RepRap 3D Printer
Features:
- Voltage : 3-6 V
- Torque : 4.2 Kg-cm
- Step Angle: 1.8 deg / step
- Motor Shaft Diameter: 5mm
- Shaft Length: 22mm
- Motor Size: 42x42x40 mm
- Specification: NEMA 17
- Item SKU: ISC 224

15) Thermoplastic ABS

Features:
- ABS (acrylonitrile butadiene styrene)
- Excellent mechanical properties: Tensile modulus, impact resistance and toughness
- Matt surface quality
- Withstand operating temperatures up to 85°C
- Should be UV Sensitive
- For a better print quality use an enclosure Thermoplastic PLA
- Extruder Temperature: 190-230 °C
- Printing Speed: 50-90+ mm/s
- Bed Temperature: 60-70 °C
- Bed Adhesion: Blue Painters Tape

Thermoplastic TPU
- Abrasion Resistance < 0.1 mg (H18 500 Cycles 1kg) None
- Colour Various None
- Elongation at Break > 500 % None
- Highest Recommended Working Temperature 120 °C None
- Lowest Recommended Working Temperature -50 °C None
- Shore Hardness (Shore A) 85 ° Shore None
- Tensile Strength > 50 MPA

Materials
- Polylactic acid, PLA filament (L-PLA natural, f= 1.75 mm;
- MakerBotJ Industries, US-NY);
- Ethyl cellulose, EC (EthocelTM Std. 100 premium, Dow, US-MY);
- Hydroxypropyl cellulose, HPC (Klucel1 LF, Ashland, US-NJ);
- Hydroxypropyl methyl cellulose, HPMC (AffinisolTM 15cP, Dow, US-CA);
- Hydroxypropyl methyl cellulose acetate succinct, HPMCAS (AQUOT-LG1; Shin-Etsu, J);
- Methacrylic acid copolymer Eudragit1 L 100-55, EDR L, and Eudragit1 RL PO, EDR RL (Evonik, D);
- Polyethylene oxide, PEO (Sentry PolyoxTM WSR N10 LEO NF, Colorcon, UK);
- Polyvinyl alcohol, PVA (Gohsenol1 EG 05PW, Nippon Goshei, J);
- Polyvinyl alcohol-polyethylene glycol graft copolymer, KIR (Kollicoat1 IR, BASF, D);
- Polyvinyl caprolactam-polyvinyl acetate-polyethylene glycol graft copolymer, SLP (Soluplus1, BASF, D);
- Glycerol, GLY (Pharmagel, I);
- Polyethylene glycols, PEG 400 and PEG 8000 (Clariant Masterbatches, I);
- Triethyl citrate, TEC (Sigma Aldrich, D); acetaminophen, AAP (Rhodia, I);
- Furosemide, FUR (Metapharmaceutical, E)

16) Ramps 1.4

Features:
- Supply Voltage: 12V
- Standard interfaces (as that of the extruder)
- Reserved GCI like I2C and RS232
- MOSFET's are applied to the heater/ fan and thermistor circuit.
- Another 5A added to protect the component parts.
- An 11A fuse is added to the hotbed.
- Support 5 stepper drive board

17) Mk 2B dual power pcb heat bed with 14 AWG cable
Features:
- Dimensions (Outer): 214 x 214 mm.
- Dimensions (Heat Bed): 200 x 200 mm.
- Come with resistor and LEDs soldered, basic soldering skills needed to solder the power wire
- Layer, 35μm copper.
- Copper Plated Holes
- Very good in combination with RUMBA or Taurino Power.
- Power Input: 12V / 24V DC

18)Extruder (Mk8 extruder left hand)
Features:
1. Right Short Side MK8 Extruder
2. High-Quality Replacement for your blocked/damaged MK8 Extruder
3. Material: Aluminum alloy

The price may clearly indicate applicable tax, packing, forwarding and handling charges.
The firms wish to supply the item are requested to submit the quotation in sealed cover to the undersigned not later than 4:30pm on 08.02.2021. Quotations will be opened at 10:30am on next working day (09.02.2021) in the presence of the suppliers or their authorized agents.

29.01.2021

Professor & Head
Department of Optoelectronics
University of Kerala, Karivattom P.O
Thiruvananthapuram-695581