






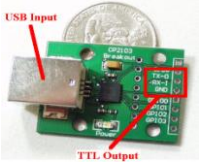

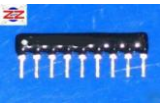






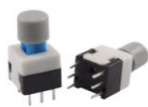






| Sr No | Component | Details/ Specification | Quantity | Remarks | Reference |
|---------------------------------|-----------------------------|-----------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Electronic Components | | | | | |
| 1 | Stepper motor | Step Angle : 0.9degree Part no - 4209L - 03 - 01 | 2 | <u>exactly the same one which we have in COEP fab lab.</u> <u>Black colour motor</u> |  |
| 2 | Micro controller | Atmega16A | 1 | 40 pin DIP package |  |
| 3 | IC base | 40 pin DIP IC base | 1 | for mounting microcontroller on PCB | - |
| 4 | Micro controller programmer | AVR usb programmer | 1 | |  |
| 5 | IC L298 | 15 pin IC. Vertical package | 1 | | |
| 6 | Heat sink for L298 | | 2 | |  |
| 7 | Silica rubber and gel | needed for good conduction of heat sink | 2 | |   |
| 8 | IC OP07 | OP AMP IC 8pin DIP package | 5 | If OP07 not available, IC 741 is also ok | |
| 9 | USB-to-TTL module | <u>not USB-to-RS232</u> | 1 | output should be TTL only, which can directly be given to microcontroller. <u>RS232 output is not useful. Should NOT have DB9 connector</u> |   USB Input TTL Output |
| 10 | USB cable | | 1 | for connecting PC USB port to above module and AVR programmer. A and B type connectors |  |
| 11 | Resistors | 4.7k, 1/4 watt | 10 | | |
| | | 10k blue colour single turn trim pot | 1 | | |
| | | 0.1 ohm 3 Watt | 6 | | |
| | | 9 pin resistor bank - 10k ohm | 4 | |  |
| 12 | LED | red colour SMD 1206 package | 10 | SMD package only |  |

| | | | | | |
|----|-------------------------------------------|---------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13 | Diode | FAIRCHILD SEMICONDUCTOR - SZM - DIODE | 20 | SMD package only |  |
| 14 | 4 pin plug-in screw connector (for motor) | male female pair | 2 | <u>option 1 preferred</u> . If not available, then option 2 also ok. |   |
| 15 | 3 Amp wire (for motor) | | 1.5 meter | | |
| 16 | Multi strand wire | red colour | 0.5 meter | | |
| 17 | | black colour | 0.5 meter | | |
| 18 | 12V adaptor | male female pair | 2 | |  |
| 19 | Buttons | push button (momentary) | 10 | need to press/hold continuously to turn ON. If SMD package available, it will be preferred |  |
| | | push button (detent type) | 3 | need to press only once to turn ON/OFF If SMD package available, it will be preferred |  |
| 20 | Crystal | Flat type 12Mhz | 1 | |  |
| 21 | 2 pin connector (relimate) | male female pair. Male part for PCB mounting. Female part with wire | 3 | If 2 pin not available, 4 pin also ok |  |

2. Mechanical Components

| | | | | | |
|----|--------------|---------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 22 | Coupling | Part numbers listed here - | 3 | Encoder Coupling. Specification - ID1 = 5mm ID2 = 10mm OD < 28mm (the smaller the better). Length < 30mm (the smaller the better). - <u>Please try to get any 1 of the part number mentioned starting from top.</u> - <u>If exact part number not available, get the one which fits above specification.</u> <u>Total Qty 3</u> |  |
| | | <u>Make - Rocomcorp :-</u> | | | |
| | | ATOOM075-C10MM-C5MM | | | |
| | | ATOOM075-C.375-C.187 | | | |
| | | <u>Make - Encoders India :-</u> | | | |
| 23 | Ball Bearing | AHC 25-32-5x10 | 10 | Specification- ID = 10mm OD < 25mm (the smaller the better) Thickness = 5 or 6mm (not more) - <u>Please try to get any 1 of the part number mentioned starting from top.</u> - <u>If exact part number not available, get the one which fits above specification.</u> <u>Total Qty 10</u> |  |
| | | Part no- 6800ZZ 61900 | | | |