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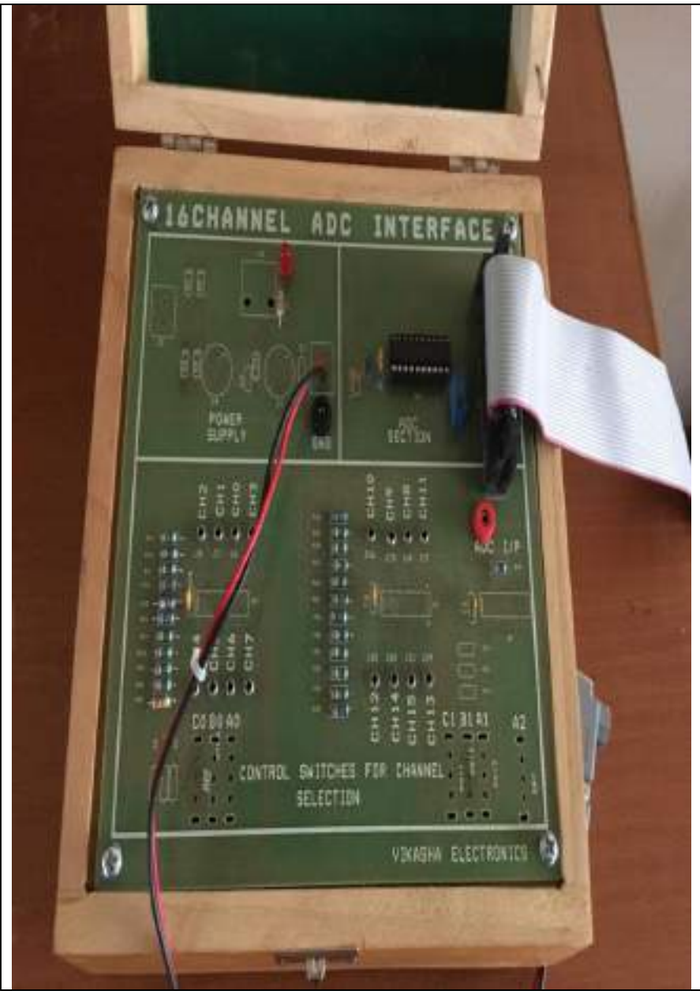
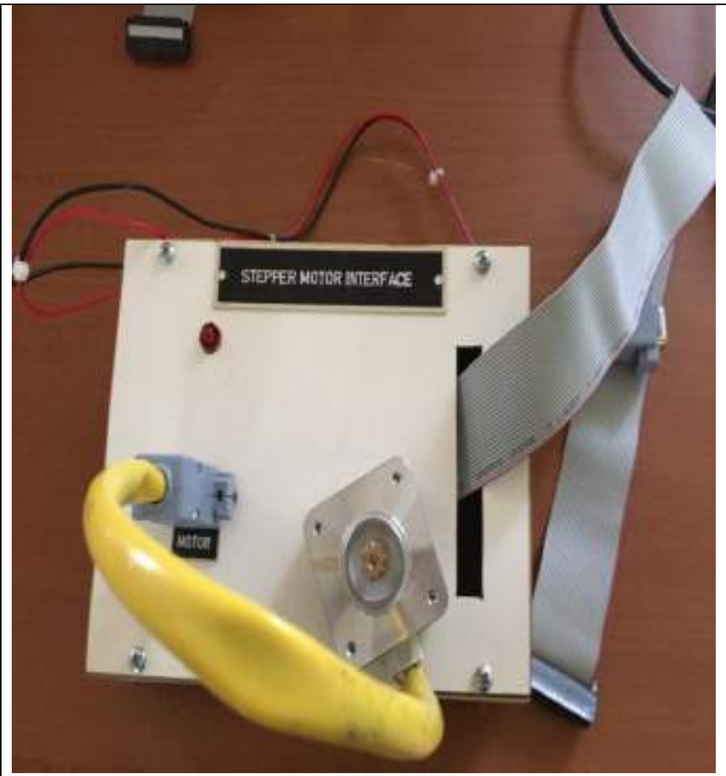
Purchase orderNumber: SPMVV/SoET/ECE/2020 **Dated:**05-11-2021

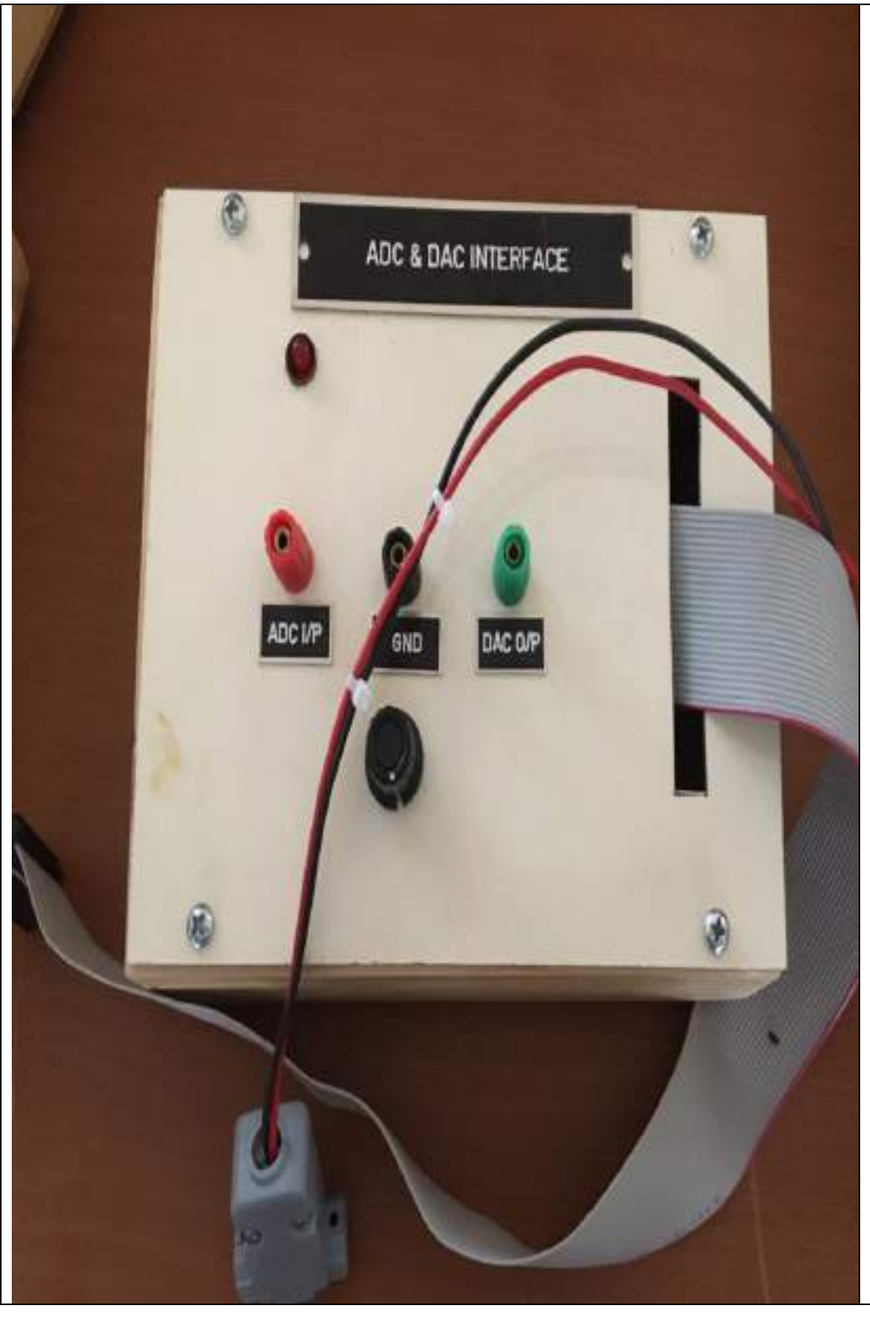
S.No.	Equipment Name	Equipment Stock Entry Name with Page Number	Equipment Description	Photograph	Quantity	Usage
1	8086 Microprocessor Trainer	MP-01	**PROCESSOR**: * INTEL 8086CPU AT 4.77 MHZ CLOCK SPEED **MEMORY:** * 16KB for monitor EPROM upgradable to 64kb * 16KB RAM expandable to 64KB * 16 x 2 Alphanumeric LCD display * PC Keyboard (105 keys) TIMER, PARALLEL I/O, SERIAL AND BUS EXPANSION: * 48 TTL I/O lines brought out to two nose of 26 pin FRC connector * 1 number of standard RS232C compatible serial port brought out to a pin D Type male connector/ USB to serial converter. Fully buffered address data and control signals terminated at a 50 pin header (VXT BUS) for interfacing Bestmach series of experiment boards and bus expansion. SPECIAL FEATURES: * The kit and the power supply are mounted. SOFTWARE: * Built-in line assembler & Dissembler * Powerful debugging monitor to develop		**5**	We can perform all arithmetic and logical programs and perform sorting programs and interfacing with hardware experiments by using 8086 Microprocessor trainer kit.

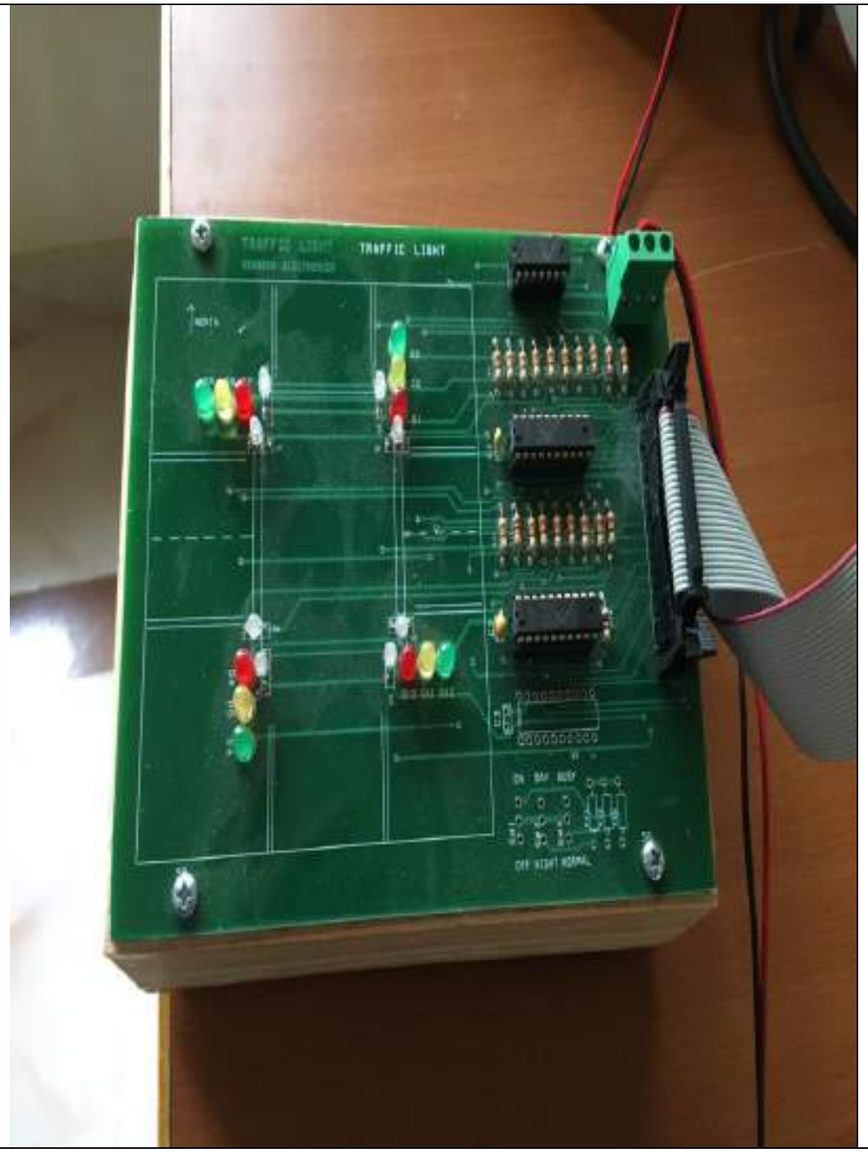
			user program.			
2	Keyboard and display interface	MPCI-01	6 Digit 7 Segment display and also have 4*4 keypad. Can be hooked up to any parallel port (Die-1 standard)Terminatio n 1 Dio-1 bus at 50 pin IDC Connector.		**4**	By using Keyboard and display interface kit we can write display programs as well as interfacing with 4 by 4 keypad.
3	Clock program interface	MPCI-02	Incorporates INTEL 8253 timer & USART 8251 * Provision to give External/Internal/M anual input clock to 8253 * Output of channel 2 to CPUs interrupts * Baud rate generation for 8251 using 8253 * Standard RS232C serial port in a 9 Pin 'D' Male Connector All timer inputs/outputs terminated in a 10 Pin Header * Loop back provision to check the serial port * Provision for test points & fault analysis points * 50 Core Cable provided * All Address, data and control lines are terminated in a 50 Pin FRC OEN Make		**4**	We can generate different clock frequencies by using this clock program interface .

			male connector to interface with VXT bus.			
4	Elevator Interfacing	MPCI-03			**4**	

5	16 Channel ADC interfacing	MPCI-04	* Parallel Port Based. * Incorporates two nos of ADC0809, all the 8 channelAnalog inputs are terminated at suitable connectors * Trimpot is provided onboard for connecting to channel 0 or 3 or 6, selectable Jumpers. “ 26 Core Cable. * Detailed Hardware 8i Software manual. Optional :Additional 8 Channel ADC		4	In A DC & DAC interface we can read analog data by varying the dc voltage from 0 to 5v and generating square wave and ramp , triangular wave is possible.

6	Stepper motor control	MPCI-05	Specifications: Driver provided for controlling one stepper motor * Can control Stepper motors ranging from 2Kg to 20kg * Provision for connecting external power supply of 6V, 12V or 24V, Selectable by jumpers. * One 1Kg/12V Stepper Motor * All Address, data and control lines are terminated in a 50 Pin FRC OEN make male connector to interface with VXT bus * 50 Core Cable POWER SUPPLY FOR STEPPER MOTORS Special Linear Power Supply (6 Volts @ 6 Amps)		5	Rotating the motor in clockwise and anti clockwise directions with the program we can use stepper motor interface .

7	DAC interfacing using IC DAC	MPCI-06	Specifications: * Two numbers of DAC 0800 - Digital to Analog Converter. * Analog Output: +5V to -5V, DAC can be used as ADC using successive approximation technique by software. * DAC Outputs are terminated at suitable connector. * 26 Core Cable. * Power supply. Input : 230V A.C. Output: +5V *3.5A , +12V*150 mA. Connected to parallel port (Dio-1 bus) all the kits		4	In A DC & DAC interface we can read analog data by varying the dc voltage from 0 to 5v and generating square wave and ramp , triangular wave is possible.

8	Traffic light interfacing controller	MPCI-07	Connected to parallel port (Dio-1 bus) of all the kits * 32 LEDs provided to Simulate Traffic Control System * Buffers provided for individual LEDs * 26 Core Cable provided * Application: Traffic light simulation * Detailed Hardware & Software manual (CD)		4	Traffic light controller interface module is designed to simulate the function of four way traffic light controller. Combinations of red, amber and green LED's are provided to indicate Halt, Wait and Go signals for vehicles. Combination of red and green LED's are provided for pedestrian crossing.

9	Interfacing of temperature measurement	MPCI-08	This interface consists of a Probe mounted AD590 Temperature Sensor, conditioning Electronics and an 8 bit ADC, AD0809		5	Temperature measurement is of great importance in industry as most of the processes are temperature dependent. A number of devices and schemes have been used over the years, for the measurement of temperature. Typical sensors include devices like thermocouples, thermostats, RTD's and semiconductor sensor.

10	8051 Microcontroller Trainer(LCD with 101 ASCII Keyboard)	MC-01	PROCESSOR: * 8051 / 89C51/89x51 Microcontroller, 12MHz Clock speed MEMORY: * Program Memory RAM - 32KB * Data Memory RAM - 32KB * Program Memory EPROM - 32KB PERIPHERALS KEYBOARD AND DISPLAY * 16x2 LCD Display * 105 Keys PC keyboard is provided and also reset and interrupt keys are provided (RRE Key) PARALLEL I/O BUS EXPANSION * One no. of 8255 connections are terminated in one 26-pin FRC header (24 I/O lines) * One VXT-Bus (50 pin FRC connector) for interfacing VBMB series of experiment board and bus expansion * Microcontroller port lines are terminated with one 40-pin FRC header DIGITAL I/O * On board 8-digital inputs can be given through 8-Way dip switch * On board 8-digit outputs can be visible through SMD LEDs * The port lines P1 used as input (switch) or output LED (selectable hardware) SPECIAL FEATURES: * Software single stepping of user		4	We can perform all arithmetic and logical programs and operating timers in different modes and verifying the serial communication perform sorting programs and interfacing with hardware experiments by adc, dac , stepper motors etc using 8051 Microcontroller trainer kit.

			programming by instruction for software debugging (at same time user interrupt is not access) * Housed in a sleek plastic cabinet. SERIAL PORT: * On chip RS232 Compatible Serial Interface terminated in a 9 Pin 'D' Male Connector/USB to serial converter BUILT-IN POWER SUPPLY (MULTI OUTPUT) : * Input : 230V AC			

11	Arduino Microcontroller	MC-02	Operating Voltage: 5V Input Voltage (recommended): 7-12V Inout Voltage (limit): 6-20V Digital I/O Pins: 14 (of which 6 provide PWM output) PWM Digital I/O Pins: 6 Analog Input Pins: 6 DC Current per I/O Pin: 20 mA DC current for 3.3V Pin: 50 mA Flash Memory: 32 KB (ATmega328P) of which 0.5 KB used by bootloader SRAM: 2 KB (ATmega328P) EEPROM: 1 KB (ATmega328P) Clock Speed: 16 MHz LED_BUILTIN: 13		3	Additional experiments and mini projects can be developed by using this Arduino Microcontroller .

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