

LIST OF MICROCONTROLLER BASED PROJECTS

Last updated on: 23-01-09

AT-89C51 BASED

MICROCONTROLLER AT-89C51 BASED METRO TRAIN PROTOTYPE USING LCD: The project shows resemblance as you are traveling in metro train. It will display three station at LCD and a stepper motor to rotate clock or anti-clock wise.(with or without vehicle) ASM

MICROCONTROLLER AT-89C51 BASED VOTING MACHINE: The voting system for four candidates with memory backup to restore the results to be viewed with password. ASM

MICROCONTROLLER AT-89C51 BASED TEXT EDITOR CUM MOVING MESSAGE DISPLAY: The project comprises 30 keys to edit any message in English. One can restore the message in memory IC. The 16 characters at a time can be view in running mode. C & ASM

MICROCONTROLLER AT-89C51 BASED FULL FUNCTION STEPPER MOTOR CONTROLLER : The project will operate the stepper motor in almost all modes viz. clock, anticlock, speed and frequency control with time duration for both directions. ASM

MICROCONTROLLER AT-89C51 BASED WATER LEVEL CONTROLLER CUM MOTOR PROTECTOR: It can indicates the level and control the water pump at top level filling. ASM

MICROCONTROLLER AT-89C51 BASED SIMPLE STEPPER MOTOR CONTROLLER: A simple stepper motor controller circuit with direction change only. ASM

MICROCONTROLLER AT-89C51 BASED CALL MONITORING SYSTEM: An economical room monitoring system for eight channels and with buzzer indication and seven segment display provides feed back to the caller. ASM

MICROCONTROLLER AT-89C51 BASED INDUSTRIAL FAULT MONITORING SYSTEM: It will check the faults like ASM

over temperature, humidity, power failure, over voltage etc. at the monitor. One can link this with RF data encoders/decoder for wireless link.

MICROCONTROLLER AT-89C51 BASED SAFETY GUARD FOR BLIND: This embedded safety guard system with voice processor to play the prerecorded message in case of any obstacle is detected by the blind person.

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MICROCONTROLLER AT-89C51 BASED FASTEST FINGER FIRST: Useful for Quiz games, dumb charades. It display the player no. along with the beep for seven players.

ASM

MICROCONTROLLER AT-89C51 BASED TEMPERATURE METER: It will display the room temperature on LCD and one can set the desired value to indicate the alarm or control at a desired teperature. It uses an ADC to interface with LM-35 sensor.

ASM

MICROCONTROLLER AT-89C51 BASED INFRARED REMOTE CONTROLLED SWITCH BOARD: (4 APPLIANCES):One can operate (on/off) four electrical devices with TV remote synchronised with circuit independently.

ASM

MICROCONTROLLER AT-89C51 BASED RANK DISPLAY SYSTEM FOR RACE & QUIZ COMPETITION WITH LCD:

ASM

It can resolve the time difference(may be few milliseconds) and indicate the correct ranking between the individuals denoted A to H

MICROCONTROLLER AT-89C51 BASED AUTO GEAR SHIFTING SYSTEM: The circuit shows the demo of auto shifting of gears using stepper motor with the change in speed of vehicle. One can change the speed of DC motor as actual vehicle running wheel.

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MICROCONTROLLER AT-89C51 BASED AUTO SPEED LIMITER/GOVERNER WITH AUTO BREAKING: The project is to read the rpm of a automobile and according to that it limits the speed as Speed Governor. One can change the speed with variable control.

C

MICROCONTROLLER AT-89C51 BASED LINE FOLLOWER ROBOT: A Robotic car that follows the black line at the floor area based on IR sensors with transmitters and receivers.

ASM

MICROCONTROLLER AT-89C51 BASED 'YES MASTER' FOLLOWER : A robotic car that follows his master who is sending an IR transmission always.

ASM

MICROCONTROLLER AT-89C51 BASED OVER CURRENT RELAY: The circuit senses the over current and limit the relay .

MICROCONTROLLER AT-89C51 BASED VOLTAGE/ POWER FACTOR / FREQUENCY METER: The project check the electrical input factors as multifunction meter.

MICROCONTROLLER AT-89C51 BASED DATA DRIVEN DISPLAY : It shows how you can use the controller to drive an LCD module and in turn use it as a handheld device to set the parameters of the control unit through RS-232 serial link. It comprises two units – Control unit and a LCD module unit. Any wired or wireless link like IR can be used to display the unit.

MICROCONTROLLER AT-89C51 BASED TELEREMOTE SWITCH: The project can is to remotely control four electrical devices using a landline or mobile to be connected with the circuit.

MICROCONTROLLER AT-89C51 BASED TRIPPING SEQUENCE CODE INDICATOR: The electrical utility project that indicates the MCB tripped on the first if short circuit arises and the sequence for total eight areas.

MICROCONTROLLER AT-89C51 BASED RFID ATTENDENCE MONITOR: The project will show the names of person who had pressed the RFID key on LCD. One can use DATA encoder/decoder circuit.

MICROCONTROLLER AT-89C51 BASED LED LIGHT CHASER: With the help of this one can display 5 different effects for running lights for 24 lights. One can change the speed also.

ASM

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AT-89C2051 BASED

MICROCONTROLLER AT-89C2051 BASED FREQUENCY COUNTER USING LCD: The project will check the unknown frequency input upto 200KHz. and display at LCD.

TRAFFIC SIGNAL CONTROL TRAFFIC MAN: It can actually control traffic with lights and humanoid robot police man

BAS

rotating in all directions with hand movements for stop and go actions. This is a project comprises two stepper motors to perform the action.

MICROCONTROLLER AT-89C2051 BASED IR WIRELESS FREQUENCY COUNTER: The project will check the unknown frequency input upto 200KHz. coming from an IR source and display at LCD.

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MICROCONTROLLER AT-89C2051 BASED ULTRASONIC FREQUENCY DETECTOR CUM COUNTER: The project will check the unknown frequencies input upto 200KHz. coming from any ultrasonic source and display at LCD.

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MICROCONTROLLER AT-89C2051 BASED LINE FOLLOWER ROBOT: A Robotic car that follows the black line at the floor area based on IR sensors with transmitters and receivers. With options like: (a) mines/metal detector with auto brake
(b) IR sensor with auto braking at front.

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MICROCONTROLLER AT-89C2051 BASED STEPPER MOTOR CONTROLLER WITH VARIABLE SPEED AND DIRECTION: It controls a stepper motor for direction and speed functions.

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MICROCONTROLLER AT-89C2051 BASED ROBOTIC ARM: The three stepper motor based key controlled robotic arm can grip, lift and rotate the specified object using 3 axis movement.

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MICROCONTROLLER AT-89C2051 BASED COUNT DOWN TIMER: The project performs the countdown operation for upto - 99 minutes with two seven segments display showing actual time left to activate or de-activate the connected relay.

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MICROCONTROLLER AT-89C2051 BASED FOUR DIGIT CODE LOCK WITH LCD DISPLAY: One can lock the desired device with the help of this project. It will open with a selected four digit code.

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MICROCONTROLLER AT-89C2051 BASED AUTOMATIC FLUSHING SYSTEM: It will switch on the motor pump for flushing for a time duration whenever the urinals/toilet is used by someone.

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MICROCONTROLLER AT-89C2051 BASED SPEED MONITORING SYSTEM FOR MOTOR – TACHOMETER:

ASM

The project reads the motor speed on any ac/dc motor at four seven segment displays using IR technique. The project also comprises a dc motor speed controller circuit to change the speed of motor with a variable control.

MICROCONTROLLER AT-89C2051 BASED ULTRASONIC DISTANCE METER: This will check and display the distance between device and object/wall etc. at LCD. ASM

MICROCONTROLLER AT-89C2051 BASED TEMPERATURE INDICATOR: The temperature of room can be displayed at LCD using a sensitive device DS 1621. ASM

MICROCONTROLLER AT-89C2051 BASED CAPACITANCE METER: The project will check the value of unknown capacitor at seven segment display. ASM

MICROCONTROLLER AT-89C2051 BASED HEART BEAT MONITOR (PULSE RATE) It will check the pulse rate of a person from the finger and display it at seven segment unit. ASM

MICROCONTROLLER AT-89C2051 BASED WIRELESS RF LINKED HEART BEAT MONITOR (PULSE RATE). It will check the pulse rate from the remote end using RF transmitter and receiver link at say 10 meters. ASM

MICROCONTROLLER AT-89C2051 BASED VERSATILE TIMER FOR SPORTS, CONFERENCE, KITCHEN OR TEL. BOOTH : Its quite useful timer for many applications. BAS

MICROCONTROLLER AT-89C2051 BASED ALARM CLOCK: The unit display the time in Hr. Min. and one can set the alarm also for a desired time at Seven segment display. ASM

MICROCONTROLLER AT-89C2051 BASED AUTO FISH FOOD FEEDER FOR AQARIUM: One can set a time to feed fishes using a mechanical arrangement to feed once a day. ASM

MICROCONTROLLER AT-89C2051 BASED BRAINWAVE FOR TENSION RELIEF: The timer based flashing light with frequency control can be useful for person to get rid of tension at night while on bed time. ASM

MICROCONTROLLER AT-89C2051 BASED VERSATILE PROGRAMMABLE STAR DISPLAY: The 10 outputs connected to controller with triac controlled circuit operates the bulbs with different light effects. ASM

MICROCONTROLLER AT-89C2051 BASED INDUCTANCE ASM

METER: It is to measure inductance value based on the technique of time of charging an inductor. It can measure values ranging from 1mH to 5H.

MICROCONTROLLER AT-89C2051 BASED VEHICLE SPEEDOMETER CUM ODOMETER: The project comprises a dc motor speed controller circuit with reed sensor. It is being detected by this and display the same at LCD in form of speed Km./Hr. and also display the distance covered by the vehicle.

ASM

AVR ATMEGA-8535 BASED

MICROCONTROLLER AVR ATMEGA-8535 BASED REAL TIME CLOCK ON LCD: The clock with real time application.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED SIMPLE LED DISPLAY CIRCUIT : A simple program to run the flashing of LED with different interval.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED SINGLE MOVING MESSAGE DISPLAY WITH LCD: Pre programmed message can be displayed on LCD with moving effect.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED PWM BASED SINE WAVE GENERATOR: A PWM sine wave generator useful for Inverter prototype or any other lab applications.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED RESISTANCE VALUE FINDER: It will read the unknown value resistor and give its approx. value.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED ULTRASONIC FREQUENCY FINDER CUM DISTANCE METER: It will check the presence of ultrasonic source and stop for a while with reading at LCD.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED NOISE POLLUTION CHECKER: It will check the noise level in the atmosphere or on the road and display at LCD.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED IR INTENSITY METER: It will read the IR light focused remotely on it and display it on LCD.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED LIE DETECTOR: It is very close o the devices used by forensic lab to test if a person is lying or not using the change in body resistance with state of mind.

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<p>MICROCONTROLLER AVR ATMEGA-8535 BASED CONDUCTIVITY METER (ACID/BASE): The project will check the conductivity level of a liquid and read it at LCD.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED PH METER: Like wise the above it will check the PH value for acid and basis.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED SMOKE DETECTOR FOR POLLUTION CHECKING: It will check the smoke particulates in an area or carbon particles deposited on a surface.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED CARBON DIOXIDE DETECTOR: It will read the CO2 level in an atmosphere using lime water as base.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED PRESSURE GAUGE: It will check the atmospheric pressure.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED ALCOHOL SENSOR -ELECTRONIC NOSE: The project is quite unique that check the change in reading from one level to other if senses the presence of Alcohol. Useful for police to check car/truck drivers.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED LPG/CNG GAS SENSOR – ELECTRONIC NOSE: Another useful project that sense the LPG or CNG gas if it is detected in its surroundings.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED LIQUID DENSITY METER: This piezo electric sensor based system reads the change in liquid density using ultrasonic piezo crystals for transmission and reception of different frequencies.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED TORQUE TESTING DEVICE: A useful device for mechanical persons to check the torque of a motor or any other object.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED WAVE LENGTH READER / LUX METER/LIGHT INTENSITY METER: It will read the intensity of light in an area like you see in cricket match that is used by umpire in the play ground.</p>	ASM
<p>MICROCONTROLLER AVR ATMEGA-8535 BASED HUMIDITY CHECKER/HYGROMETER: It will check the</p>	ASM

relative humidity in atmosphere using humidity sensor.

MICROCONTROLLER AVR ATMEGA-8535 BASED MAGNETOMETER: It will read the magnetic field around it.

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MICROCONTROLLER AVR ATMEGA-8535 BASED TEMPERATURE INDICATOR: It will check the real time temperature at the sensor and view at LCD.

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MICROCONTROLLER AVR ATMEGA-8535 BASED TEMPERATURE INDICATOR CUM CONTROLLER: This will not only check the temperature but also control the selected temperature to switch on/off the unit.

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MICROCONTROLLER AVR ATMEGA-8535 BASED SECURED ROOM ACCESS WITH RELAY DOOR WITH OPTION TO CHANGE THE PASSWORD: This is an access control system in which one can open the door/ control a device motor with the help of a specific code and anytime one can change this to save in system memory.

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MICROCONTROLLER AVR ATMEGA-8535 BASED FOSSILE DETECTOR: It will check the buried metal/ non metal objects under the surface.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED PRANAYAAM TIMER: It's a must project for every one who do yoga a

C

MICROCONTROLLER AVR ATMEGA-8535 BASED OPTICAL FIBRE PRESSURE SENSOR : It sense the pressure given on he bunch of fibers and gives the change in reading at LCD.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED AIR PRESSURE WEATHER MONITORING DEVICE FOR AVIATION.: It's a useful device that check the air velocity using a motor drive with blower to provide analogue input to the circuit.

ASM

MICROCONTROLLER AVR ATMEGA-8535 BASED ULTRASONIC FLOW METER FOR LIQUID: It will read the flow of liquid from a pipe in digital form.

ASM

MICROCONTROLLER AT-89C52 – AT 89S52

MICROCONTROLLER AT-89C52 BASED TEMPERATURE INDICATOR: It will read the real time temperature and display the same at LCD.

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MICROCONTROLLER AT-89C52 BASED BI-DIRECTIONAL VISITOR COUNTER (ENTRY/EXIT): It check the entry and exit of persons using IR as sensing device and display the total at seven segment display. C

MICROCONTROLLER AT-89C52 BASED AUTOMATIC ENERGY SAVER CUM ROOM LIGHT CONTROLLER: It check the entry of persons and accordingly switch on or off the electrical devices like fan or lights. C

MICROCONTROLLER AT-89C52 BASED SMART CARD FOR AUTO PARKING: The amount will be debited the from smart card whenever the person enter at parking lot. C

MICROCONTROLLER AT-89C52 BASED PERPAID ENERGY METER: The project will count down the reading on the seven segment display in Rs as “ Amount Balance”. The dummy two digit counter will act as Electric Meter count for units consumed. It will automatically cut off the load if no balance. C

MICROCONTROLLER AT-89C52 BASED INFRARED TRACKING ROBOT: The robot car with two stepper motors follow the master transmission area (IR) and follow the same. ASM

MICROCONTROLLER AT-89C52 BASED DC MOTOR SPEED CONTROLLER: The DC motor can controlled in nine different speeds with a seven segment display to show the level. C

MICROCONTROLLER AT-89C52 BASED IGBT CONTROLLED DC MOTOR DRIVE: : The DC motor speed can be controlled and driven by IGBT in PWM mode from controller with nine different speed modes using up/down keys. C

MICROCONTROLLER AT-89C52 AUTO SPEED CONTROLLED ROBOTIC VEHICLE: It is capable to change the speed of robot when it sense another vehicle at the front. C

MICROCONTROLLER AT-89C52 BASED REMOTELY PROGRAMMABLE RTC INTERFACED : One can remotely program 24 devices through PHILIPS IR remote for its on and off operations. ASM

MICROCONTROLLER AT-89S52 BASED INDUSTRIAL TIMER: The project is useful for industrial application as countdown timer for both Minutes and Seconds setting option. The seven segment display will show the remaining time left. C

MICROCONTROLLER AT-89S52 BASED TALKING MACHINE: It checks the different aspects of machine like C

temperature, humidity, power status etc. and controlled by microcontroller for a pre defined time and also indicate its status in form of read pre-recorded voice using voice processor.

MICROCONTROLLER AT-89S52 BASED WIRELESS

C

DEVICE CONTROL: The device or machine can be RF or IR control with this system.

MICROCONTROLLER AT-89C52 BASED CALORIMETER

N.A

(JOGGING METER): The Project will take the inputs as individual weight and calculate the calorie loss in a specific time while jogging at the track. It is quite useful for health conscious persons.

MICROCONTROLLER AT-89S8252

MICROCONTROLLER AT-89S8252 BASED REAL TIME

BAS

CLOCK (HR. MIN. SEC): The compact car clock with seven segment display showing hours, minutes and seconds.

MICROCONTROLLER AT-89S8252 BASED DIGITAL

BAS

THERMOMETER CUM CONTROLLER: The real time thermometer with DS 1821 as temperature sensor show the output at seven segment display unit with a single relay to switch on/off the desired device to be controlled at specified temperature.

MICROCONTROLLER AT-89S8252 BASED WIRELESS

ASM

MESSAGING VIA MOBILE/LANDLINE PHONE (SMS): The DTMF tones sensing circuit display the message at LCD as sent by other end by means of tone transmission.

MICROCONTROLLER AT-89S8252 BASED LCD

C

GRAPHICS DISPLAY SYSTEM: Multi graphics modules can be used to display scenery or big fonts to write messages at 120x64

MICROCONTROLLER AVR 90S 8515 OR 90S 4433

MICROCONTROLLER AVR 90S 8515 BASED STAND

C

ALONE SCROLLING DISPLAY FOR MESSAGE: It is used to control and display 7x5 matrix (four nos.) modules to be interfaced with PC serial port. A software in C will allow the user to enter the message to be display and run in moving effect at the output.

MICROCONTROLLER AVR 90S 4433 BASED

ASM

PROGRAMMABLE TIMER: One can set the desired time with keys display at four seven segment displays for single device to

switch on/off.

MICROCONTROLLER AVR 90S 4433 BASED CLOCK: The clock is using 8 bit RISC controller with Hr. Min display on seven segments with the option to set alarm also.

ASM

MICROCONTROLLER AVR 90S 8515 BASED GRAPHICS DISPLAY USING NOKIA PHONE LCD: It can be used to display symbols, characters and monochrome graphics that cannot be display using ordinary alphanumeric LCDs. It requires only 3V to operate Using Nokia 3315 LCD..

C

MICROCONTROLLER BASED WEIGHING SCALE: - This controller-based circuit can weigh the object and gives readout at LCD display.

MICROCONTROLLER AVR ATmega 16 OR ATmega32

MICROCONTROLLER AVR ATmega 16 BASED REMOTE CONTROLLED REAL TIME CLOCK WITH DEVICE CONTROLLER: The LCD based real time clock with IR remote functions to control eight devices (5+3) with alarm and timer operatios.

C

MICROCONTROLLER AVR ATmega 16 BASED MOBILE PHONE OPERATED LAND ROVER: The DTMF based land rover run with a mobile placed on it and operated with another mobile in hand for its left, right , reverse, forward and stop functions to perform.

C

MICROCONTROLLER PIC 16F84, PIC 16F73,

MICROCONTROLLER PIC 16F84 BASED CODED DEVICE SWITCHING SYSTEM FOR MULTIPLE DEVICE SWITCHING: You can program separate password code for multiple devices connected to this hardware.

ASM

MICROCONTROLLER PIC 16F84 BASED TRIGERRING CIRCUIT FOR SCR PHASE CONTROL: An SCR/Traic based converter can be controlled by manual keys pushbuttons, however this could be changed to programmable control by making use of feedback obtained by sampling the output voltage across the load.

ASM

MICROCONTROLLER PIC 16F73 BASED DYNAMIC

ASM

TEMPERATURE INDICATOR CUM CONTROLLER: The PIC controller is preferred for in build ADC thus using AD-590 temperature sensor with relay driver circuit to control device at a specific temperature. Display of temperature is on dual line LCD.

PIC 12F675 BASED FOUR CHANNEL ANALOGUE TO DIGITAL CONVERTER: The PIC controller takes 4 channel inputs and the output is interfaced to PC (serial port link) in C++ program.

Bas+
C++

MICROCONTROLLER PROJECTS MISC.

WIRELESS KEY BOARD: It can communicate with PC using IR to work as wireless keyboard.

MICROCONTROLLER 78121 series (Specially Designed controllers)

- a) IR based variable speed fan controller.
- b) IR based multiple device control cum motor controller.

MICROPROCESSOR 8085 BASED PROJECTS

(TO BE INTERFACED WITH 8085 MICROPROCESSOR KIT)

ELEVATOR CONTROL SYSTEM: - The hardware interfaced with 8255 ports will display the request key for each floor operation using LEDs. The movement of lift is also displayed through moving lights

YES

WATER LEVEL INDICATOR: - The hardware interfaced with 8255 port will display the water level in the container with top level alarm facility. The kit will display the digits of the liquid level.

TRAFFIC LIGHT CONTROL SYSTEM: - The hardware interfaced with 8255 port will display the traffic light movements for all four sights inclusive right turn using LEDs.

VOTING MACHINE: - The hardware interfaced with 8255 port

operated with four keys (one for each candidate) will support the voting operation and display the total votes win by each candidate at display of the kit.

AC/DC MOTOR SPEED CONTROL: - The hardware interfaced with 8255 port will display and control the clock wise and anti clock wise operation of a DC motor with three different speeds.

BALANCE: - The hardware interfaced with 8255 port will support the connected spring balance and kit will display the object under weigh.

FASTEST FINGER FIRST: - The hardware interface with 8255 port will support the five keys (four for fastest finger and one for reset). The kit will display whose the first to press the key.

CAPACITANCE & RESISTANCE MEASUREMENT METER: - The hardware interfaced with 8255 port will support the oscillator and the kit will display the value of R or C under check.

TACHOMETER: - The hardware interfaced with 8255 port will support the RPM counter to read the revolution of a motor in one minute and display at kit.

STEPPER MOTOR AXIS CONTROL: - The hardware interfaced with 8255 port will support the speed and direction of a stepper motor connected to it.

VISITOR COUNTER: - The hardware interfaced with 8255 port will support the two separate doors each for entry and exit and the kit will display the number of people inside the hall.

ELECTRICAL APPLIANCES CONTROL: - The hardware interfaced with 8255 port will operate four electrical appliances. The desired switching of each appliance control can be done separately by the μ P kit.

SCHOOL TIMER/SCHOOL BELL SYSTEM: - The hardware interfaced with 8255 port will display the periods max. 9 with ten seconds delay for buzzer operations after each period. The time duration can be varied as per desired time in minutes.

IC TESTER: It is testing device based on 8085 μ P kit. This device will test the 14 pins IC of commonly used logic gates e.g. 7400 (Nand), 7408 (And), 7432 (Or), 7486 (X'Or'), 7404 (Hex inverter), 7407 (Buffer) etc.

ELECTRONIC LOCK: - The keys in the range 0 to 9 are used to store the key code as well as to enter the code for opening the lock.

YES

The maximum five-digit number can be stored in the memory.

MICROPROCESSOR BASED REVERSIBLE DC MOTOR CONTROL: - The project is capable of controlling DC motor speed as well as change its direction interfaced with 8255 port.