DOWNLOAD PDF TEMPERATURE CONTROLLED FAN PROJECT USING MICROCONTROLLER

Chapter 1 : Temperature Controlled DC Fan using Microcontroller - ATMega32 AVR

The proposed system temperature controlled fan using microcontroller is used to control the speed of the fan according to the temperature and specify the temperature in the display. The required components are microcontroller, temperature sensor, motor; seven segment display, ADC, power supply, operational amplifier.

Temperature controller can be done by using Electronic circuit, Microprocessor or microcontroller. Now microcontroller is advanced among all above circuits therefore we are using Microcontroller for temperature controlling. In this project, microcontroller 89s51 forms the processing part, which firstly receives data from ADC. ADC receives data from temperature sensor through amplifier. Then microcontroller 89s51 performs the comparison of current temperature and set temperature as per the logic of program for which microcontroller has already been programmed. The result obtained from the above operation is given through output port of 89s51 to LCD display of relevant data and generated pulses as per the logic program which is further fed to the driver circuit to obtain the desired output of ceiling fan. You will get a CD with this project: CD contains following things: The main blocks of the system are: Instruction set and pin out. The on chip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, it provides a highly flexible and cost effective solution so many embedded control applications. The temperature sensed by using LM The output voltage of LM 35 varies in liner proportion with the temperature. For 1 0C output of LM35 is 10 mV. For 10 0C output of LM35 is mV. ADC means analog to digital converter. The output of signal conditioning is in the analog form. But Microprocessor requires input in digital form for this purpose we have to use ADC. In this project we are using ADC The resolution of ADC is 20 mV. Output signal from micro-controller 89C51 is weak so we have to amplify that signal. Amplifier block amplifies the signal for driving the final control element i. For amplification Transistor BC is used. In this project we are using FAN as output device. If temperature is above set point then Fan is ON so that temperature will start to decrease Display Block: This project can be used in Home. This project can be used in Industry. We can monitor more parameters like humidity, light and at the same time control them 2. We can send this data to a remote location using mobile or internet 3. We can draw graphs of variations in these parameters using computer Video of the project: Temperature controlled Fan speed Youtube video coming soon Question and answers about this project: Which type of fan can be controlled using this project? We have used Triac to control speed of the fan. So you have to use AC fan. But we can provide DC fan as well if you want. Relay or transistor circuit can be provided to control speed of DC fan. Thus user can use fan operating on 12 volt CPU fan. I want to control the Temperature using the Computer, Desktop. Can I get PC based temperature controlling? In the current project, Temperature monitoring on PC is possible, but it does not have facility of Controlling temperature using computer. I want to display temperature in Fahrenheit. Yes, we can display temperature in Fahrenheit. We can use LM35 and can use formula to convert temperature from Fahrenheit to Celsius. Do you have question or any feedback about this project? Please email us your questions or write comments below.

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Chapter 2 : Temperature Sensor using PIC microcontroller

The aim of this project is to design a temperature controlled fan using microcontroller, in which the fan is automatically turned ON or OFF according to the temperature. The working of the project is explained here.

The next posts will explain the circuits and the Arduino sketches. Circuit Diagram The circuit design of solar tracker is simple but setting up the system must be done carefully. The PWM inputs of two servos are given from digital pins 9 and 10 of Arduino. WorkingLDRs are used as the main light sensors. Two servo motors are fixed to the structure that holds the solar panel. The program for Arduino is uploaded to the microcontroller. The working of the project is as follows. LDRs sense the amount of sunlight falling on them. Four LDRs are divided into top, bottom, left and right. Learning distributed computing is something of a challenge, and this small hardware kit is the answer. Building a computer cluster is one of the most impressive Raspberry Pi projects. And being able to program cluster computers is one of the most highly valued skills in the world of big data. A cluster is a set of computers networked together and used as a single system. Knowing how to manage, and use, clustered computers and supercomputers is a pretty valuable skill. The project also has a relay system which turns ON or OFF a particular device upon gas leak say we can turn the main electrical supply OFF upon gas leak to prevent fire. This makes it much easier to start prototyping with a Pi Zero board, because you no longer need to solder pins to the header manually. Now add a professionally soldered header. The small size of the Zero W makes it perfect for projects with minimal wiggle-room. In such projects, some people have no need for GPIO pins â€" they simply solder directly to the board. Metal Detectors detect the presence of metals. There are different types of metal detectors like hand held metal detectors, walk through metal detectors and ground search metal detectors. Metal detectors can be created easily and the circuit for a basic metal detector is not that complex. In this project, we have designed a simple DIY type Metal Detector Circuit using very simple components that can be used in our homes and gardens. Circuit Diagram The following image shows the circuit diagram for the metal detector circuit. Adding voice controls so that you can update your calendar, play Spotify playlists, and so much more. Impress your friends, family, and pets! How it works There are four major components to the voice-controlled smart mirror. The two-way mirror The two-way mirror is made of acrylic and sits flush over the monitor, allowing the graphics on the monitor to come through while maintaining a mirror effect. I ordered my mirror through Tap Plastics this one. Over the weekend I sat down and built a small Raspberry Pi cluster consisting of 4 nodes. I made use of a USB hub to power the boards, and a small Ethernet switch which I could hack to be also be powered from the USB hub rather from a separate wall wart. This tutorial will show you how to build an Arduino self-balancing robot that balances itself â€" just like a Segway! How Does Balancing Work? To keep the robot balanced, the motors must counteract the fall of the robot. This action requires a feedback and a correcting element. The correcting element is the motor and wheel combination. I used Nano for this project. The Raspberry Pi modules let developers figure out how to write this software and get it to work reliably without having a dedicated testbed of the same size, which would cost a quarter billion dollars and use 25 megawatts of electricity.

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Chapter 3 : Temperature controlled fan using LM35 Temperature Sensor |

A simple project using microcontroller AT89S51 to control the speed of 12V fan according to the surrounding temperature. In this project we use the concept of PWM (pulse width modulation) to increase or decrease the speed of fan.

If the room temperature increases, then the fan speed automatically increases. Similarly, if the room temperature decreases, then the fan speed automatically decreases. To sense the room temperature, we require a temperature sensor LM35 which is readily available in the market. Especially, the last feature in-built temperature sensor makes me to use this microcontroller in this project, because MSPG comes with low cost with all these built-in features. If I go for regular microcontroller or any other, I have to buy ADC and external temperature sensor LM35 which will increase my project cost. In the above circuit, the 3. Connect a 47k ohm resistor and 1nf capacitor serially between the Vcc and Gnd lines, connect the node at which capacitor and resistor joined to the reset pin of the MSP MCU and the switch S1 is the reset switch connected across the capacitor. The Port pin P1. The other end of the DC motor is connected to the 12V power supply. When the state of P1. Now the current entering into the motor from source 12V supply will finds a path to sink into the ground via ULN output line mA and the motor start rotating proportional to the current flowing through it. With the help of in-built temperature sensor, the circuit can sense the room temperature. Hence the speed of the motor will increase. Similarly, if the ON duration is less, motor speed will decrease. Automatically the DC motor increases the speed w. Similarly, it will decrease the speed if the temperature decreases. Up on reset, the DCO clock source with 1. Hence a reference of 1. And the timer mode is set to up mode, means the timer values automatically incremented until it reaches capture register value. After it immediately falls to zero. Every time when the temperature is increases come value is added to this TACCR1 in the infinite loop, so that the duty cycle may increase or decrease in turn control the speed of the DC motor.

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Chapter 4 : Temperature controlled fan using PIC 16FA

This is to certify that the work in the thesis entitled Temperature Controlled DC Fan using Microcontroller by Ghana Shyam Soren, bearing roll number EE, and Ram Ashish Gupta, bearing roll number EE, is a record of an original research work carried out by them under my.

This MCU is powerful and very easy-to-program. It has or pin package. Operating Voltage range is between 2v to 5. It is very easy to use with LCD and sensors. LCD is used to show alpha numeric characters. It has total 16 pins. A 10K ohm potentiometer is connected with pin three to set the contrast of the LCD. It also contains a backlight LED. In this project LCD is used to show whether the motion is detected or not. The LM35 is a inexpensive but precise temperature sensor. The range to LM35 to measure temperature lies between to Celsius. It is small in size as compare to other temperature sensors. It is very useful for portable projects. Breadboard, jumper wires and 10k ohm potentiometer There are many temperature sensors available in market. But LM35 temperature sensor is used in this project. It is cheapest in price and one can easily find it in market. There are many other advantages of LM35 like: It is more efficient than thermistor It is made up of integrated circuit hence no chance of damaging to internal circuitry. It draws current only in micro Amperes. Only 5 volt power supply is required for LM35 and there is no need of extra circuitry to operate it. PIC16FA microcontroller is used to read temperature value. Code of this project written in Mikro C compiler. LM35 temperature sensor converts temperature into its proportional analog voltage value. LM35 is three terminal device. Pin number one and three are for 5-volt voltage supply. Pin two is analog voltage output with respect to temperature value. Relation between measured temperature and analog output voltage is: PIC16FA microcontroller is used to measure analog voltage value. So one can interface up to seven sensors with this microcontroller very easily. I will post a project on green house system. In green house system project I have used four ADC channels to measure temperature , light, humidity and moisture. Coming back to our digital thermometer, ADC has been used to read analog voltage. After reading ADC value, using voltage and temperature relationship voltage is converted back into temperature. A conversion factor is used to convert voltage back into temperature. All these conversion has been done through programming. I will discuss it in programming part. LCD is used to display temperature value. Proteus is used for simulation. Following is a circuit diagram of Digital temperature sensor: To ensure protection of LM35 and microcontroller you can connect 80k ohm resistor parallel to output of temperature sensor. Before making this project , I recommend you should learn about LCD interfacing with microcontroller especially hardware part. In programming part conversion factor is used to convert voltage back into temperature. The conversion factor is: Comment on this post. Also comment your issue I will love to reply to your comments. To download circuit diagram and hex file of digital temperature sensor comment on following link.

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Chapter 5 : Temperature controlled fan using PIC 16FA - Gadgetronicx

design of temperature controlled fan system: The temperature is measured by means of a temperature sensor LM The output voltage of the sensor is fed to the A/D channel of the Microcontroller.

Tech Projects , B. Automatic Temperature Control Using PIC Microcontroller has the ability to monitor and control the temperature of a specified space without human intervention. The primary purpose is to manage the temperature of a given area based on settings by a user of the system. Automatic Temperature Control Block diagram This project uses a PIC microcontroller to automatically control the temperature of an area. This area could be a small plant, a house or any place or device that require a controlled temperature like an incubator egg for example. Figure 1 shows the block diagram of the system to be designed. The desired temperature setting is entered using a keypad. The temperature of the area is measured using an analog temperature sensor, the LM35 precision integrated-circuit temperature sensor is used for this. The microcontroller reads the temperature continuously and compares it with the desired value. If the desired value is higher than the measured value, then the heater is turned ON to heat the area. The heater is switched OFF once the desired temperature is reached. If on the other hand the measured value is higher than the desired value, then the fan is switched ON to cool off the area until the required temperature is reached. An LCD display shows the measured temperature continuously. Figure 2 shows the circuit diagram of the project. The heater and the fan are controlled using transistors and relays connected to pins RD0 and RD1 of the microcontroller respectively. Automatic Temperature Control Circuit diagram Note: You can set them as output and connect them to ground preferably via a pull-down resistor to avoid EM interference. Like the unused RB3 pin can be a good candidate. The Terminals ratings of the relay should depend on the power of the Heater and the Fan. The low voltage DC of the coil should be preferably 5V and with low current for the BC transistor to handle, or you can use a different transistor.

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Chapter 6 : Based Temperature Controlled Automatic Air Conditioning System ~ Electronic Freaks

That's when the idea of this fan controller was racedaydvl.com course, the best temperature controlled fan in the world doesn't help if you really need the cooling the fan is providing. But very often a small fraction of the cooling would do just fine most of the time.

Working criteria The temperature controlled fan circuit will automatically control the speed of fan according to the temperature. A temperature sensor is used to sense the temperature. The speed of fan increases with the increase in temperature and vice versa and the temperature sensed by temperature sensor on the LCD. We program the micro controller to operate the fan above 25c Components Description Components Description 1. LM35 The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius Centigrade temperature. Low cost is assured by trimming and calibration at the wafer level. It can be used with single power supplies, or with plus and minus supplies. The LM35D is also available in an 8-lead surface mount small outline package and a plastic TO package. Differential analog voltage inputs allow increasing the common-mode rejection and offsetting the analog zero input voltage value. In addition, the voltage reference input can be adjusted to allow encoding any smaller analog voltage span to the full 8 bits of resolution. Opt Coupler ILD 74 In electronics an opto-isolator, also called an optocoupler, photocoupler, or optical isolator, is "an electronic device designed to transfer electrical signals by utilizing light waves to provide coupling with electrical isolation between its input and output". The main purpose of an opto-isolator is "to prevent high voltagesor rapidly changing voltages on one side of the circuit from damaging components or distorting transmissions on the other side. Voltage Regulator L Voltage Regulator L regulator , usually having three legs, converts varying input voltage and produces a constant regulated output voltage. They are available in a variety of outputs. The most common part numbers start with the numbers 78 or 79 and finish with two digits indicating the output voltage. The number 78 represents positive voltage and 79 negative one. The 78XX series of voltage regulators are designed for positive input. And the 79XX series is designed for negative input. Crystal Oscillator 12MHz An oscillator is something that produces an output that repeats regularly. In the electronics field this will be an electrical waveform, often but not always a sine wave. The most important property of an oscillator is its frequency: This is measured in Hertz Hz for short. One Hertz is one repetition aka cycle per second. One Mega Hertz MHz is one million repetitions per second One of the problems in designing a high quality oscillator is maintaining the output frequency at the value required. One method is to control it by a quartz crystal; this is cut so that it vibrates mechanically at the design frequency, and is coupled to the electronics by the piezo-electric effect. A 12 MHz crystal oscillator is an electronic circuit, whose output frequency is controlled by a quartz crystal to repeat 12 million times per second.

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Chapter 7 : Automatic Temperature Controlled Fan Circuit using Thermistor - Circuits Gallery

Microcontroller controls the DC fan using the motor control IC LD. This IC is a dual H bridge motor driver IC through which speed and direction of DC motor can be controlled with ease. It also provides isolation between delicate microcontroller and robust motor.

This project was done for Minor Project in which I was a part of the team. As the name implies the main purpose of this project is to devise a system whose sole purpose is to condition or maintain the temperature within the predefined limits. Thus,this system proves to be useful to be used as a Air Conditioning System inside room,offices,departmental stores etc. Apart from that,it can also be used in various industrial applications such as to control the temperature in boilers,refrigerator,AC computers and Laboratories etc. Now lets look at each element of the design turn by turn. The temperature sensor gives the analog output voltage based on the temperature of the room. The LCD is used to display the data given by microcontroller. Microcontroller can turn on dc fan through the optocoupler if required. We have used led as prototype model for heater. If appropriate condition is met microcontroller can turn on heater i. In this system,if the temperature read is in between degree celcius,it is considered normal state. In this condition both fan and heater are off but the temperature and status is displayed in LCD. If the temperature of the room is in between degree celcius it is considered as a situation to turn on fan with speed of level one. In this level,appropriate temperature and status is displayed on the LCD. If the temperature of the room is in between degree celcius it is considered as a situation to turn on fan with speed of level two. If the temperature of the room is greater than 35 degree celcius it is considered as a situation to turn on fan with speed of level three. If the temperature of the room is in between it is considered as a situation to turn one heater on with heat of level one. The microcontroller port one is connected to the data pins of LCD. It is obtained using PWM. This pin is connected to the input pin of the optocoupler.

Chapter 8 : Temperature Controlled DC Fan using Microcontroller

Project Photographs: Description: Temperature controller can be done by using Electronic circuit, Microprocessor or microcontroller. Now microcontroller is advanced among all above circuits therefore we are using Microcontroller for temperature controlling.

Chapter 9 : Temperature Controlled Fan | EngineersGarage

These type of Temperature controlled fan systems can generally be used to maintain temperature of a room or object automatically. DESIGN OF TEMPERATURE CONTROLLED FAN SYSTEM: The temperature is measured by means of a temperature sensor LM