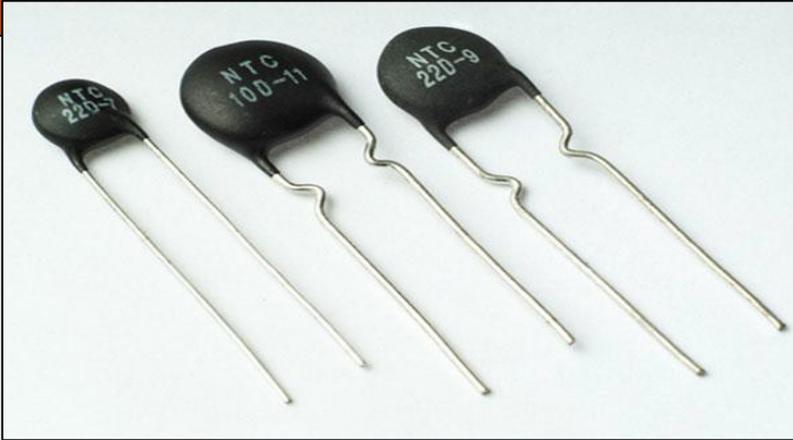




Better Electro-World

Everything About Variable Resistance NTC



Samet Karaca
Mustafa Koç
M. Fatih Aktaş
İsmail Durmuş

THE PROJECT SUMMARY

E-World (Better Electro World) is a project which is set up on the idea that VET (Vocational Education and Training) can be learned best if a student acquires vocational qualifications by the good samples of practices on peer learning and project based implementations. The main reason for this project is to lessen the educational barriers of VET which hinder a student to be successful and proactive. The idea of this project on peer learning with the good examples of project based learning comes after finding that we have a lot of common needs, problems and reasons for participating in a European partnership.

In the implementation of this project, "Learn & Do" step is improved and reinforced by taking the next step "Learn & Teach". We aim to train trainees/workers for reaching good quality with an international knowledge, vocational skills and individual competence base, relevant to working life. That will increase their employability not only in their national business but also in the EU labor market. In addition, this will set up the frame for their lifelong learning.



Contents:

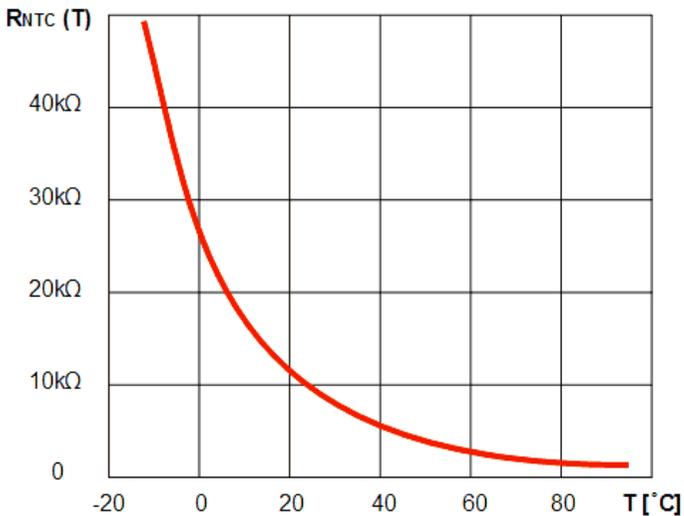
| | |
|--|----|
| THE PROJECT SUMMARY | 1 |
| Ntc Thermistor | 3 |
| Running The Ntc Material | 4 |
| Wiring Materials..... | 5 |
| Step 1- Draw the Electric Scheme | 8 |
| Step 2 – Setting Up The Circuit..... | 9 |
| Step 3 - Test the Circuit | 12 |
| Things To Be Aware Of | 13 |
| Questions: | 14 |
| Samet Karaca..... | 15 |
| Mustafa Koç | 16 |
| M. Fatih Aktaş | 17 |
| İsmail Durmuş..... | 18 |

Ntc Thermistor

The NTC Thermistor occurs in the initials of the English phrase “Negative Temperature Coefficient”. It means that the negative thermal coefficient is the elements whose resistance



decreases in proportion to the temperature. The PTC is the opposite of the thermistor. In this thermistor, as the temperature of the place increases, the resistance decreases at that rate.



Running The Ntc Material

First, we need bread board. We need to get the energy to work on the circuit we're going to build resistance, transistor, LED, potentiometer as auxiliary materials.

We can set up a circuit when these conditions are applied for the circuit to work, the materials must be connected to the appropriate places and the wiring operations must be finished.

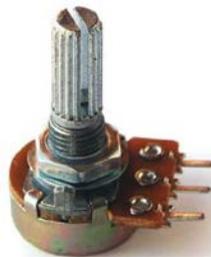
This is how our circuit works.

Wiring Materials

A- Resistor: Resistors are used to keep a certain value by limiting the current in electrical circuits. In addition, they prevent the high current from passing through the sensitive circuit elements, and they are used to divide the supply voltage and current. Some resistors of different types (LDR, NTC, PTC, etc.) can act as passive sensors to control physical changes in the external environment. In addition, the current value of the resistance on the rise is also used to warm up.



B- Potentiometer: The potentiometer is resistors whose value is changed by physical protection from the outside. The higher the current value of potentiometers, the more powerful is called roast. Potentiometers are made mostly of carbon or carbon-content resistance elements. In the roast, it is made of chromium-nickel resistance wires.



Wiring Materials

C- Transistor : The transistor is a semiconductor element consisting of two PN diodes connected side by side, providing current and voltage gain by increasing the signal applied to the input and, if necessary, is used as a switching element. The word transistor originated from the combination of the words transfer and resistance.



D- Negative Temperature Coefficient: Thermistor or thermal resistance is a type of resistance that varies with temperature and conductivity (or resistance). NTC is a type of thermistor. An electronic circuit is a circuit in which the voltage of a circuit is equal to the resistance of the circuit. The number of protons in the nucleus of an atom is equal to the number of protons in the nucleus. The greater the charge in a material, the greater the electric current. Ntcs are thermistors with negative heat coefficient.



E- Light Emitting Diode: LEDs and other diodes in the structure, such as p-type and N-type two different kinds of semi-conductor material. The P-type half-conductor has positive load carriers, N-type half-conductor has negative load carriers. In this way, only the current passing through the diode

is possible in the direction of cathode from the anode. The same is true on the LED. Different from that of the standard LED diode, P and N Type Semi-conductors in the junction of electron transfer, leads to the generation of light. This is called electroluminescence.



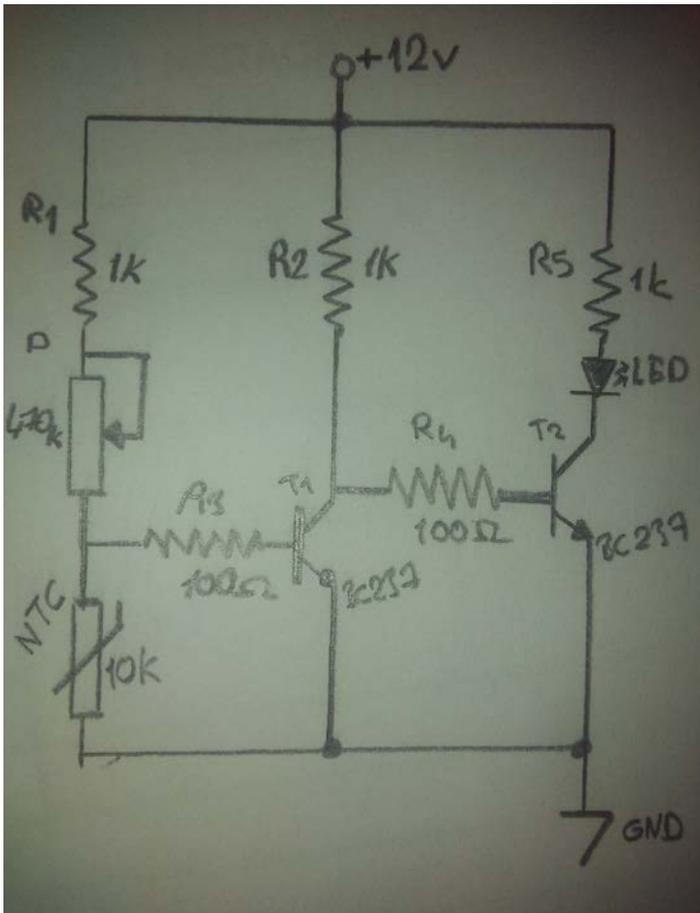
F- Battery: This is an example of a hydrogen-powered battery. In other words, batteries are devices that can store electrical energy in a chemical bond so that it can be converted into electrical energy immediately.



Step 1- Draw the Electric Scheme

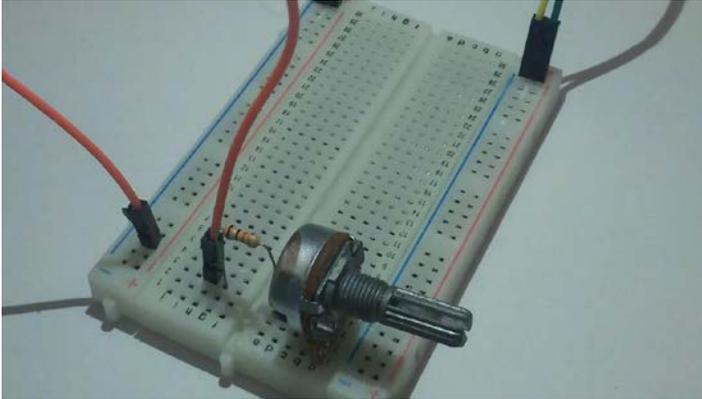
We should draw the circuit scheme of NTC.

Circuit Diagram:

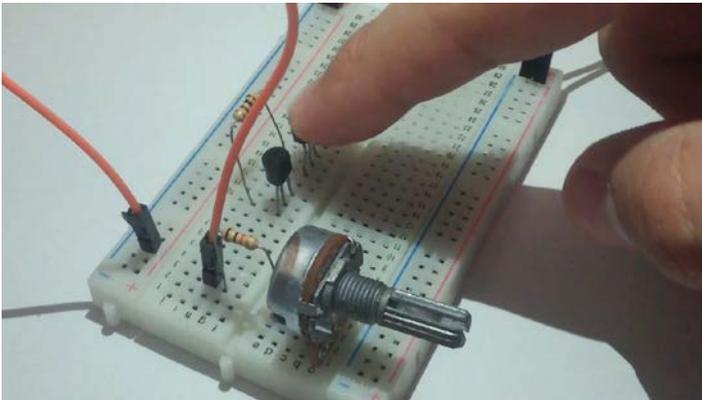


Step 2 – Setting Up The Circuit

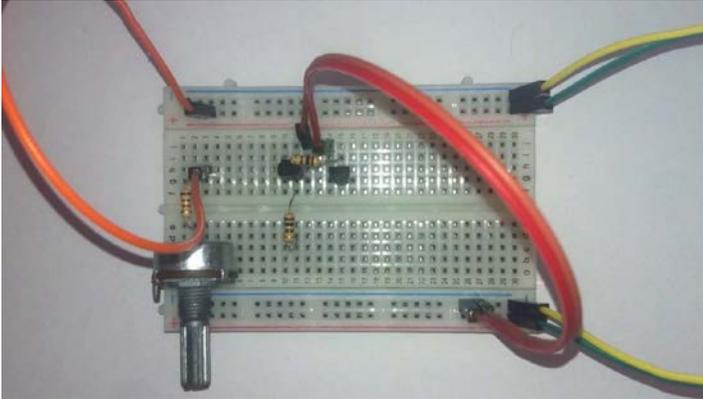
- a. Make a potentiometer connection.



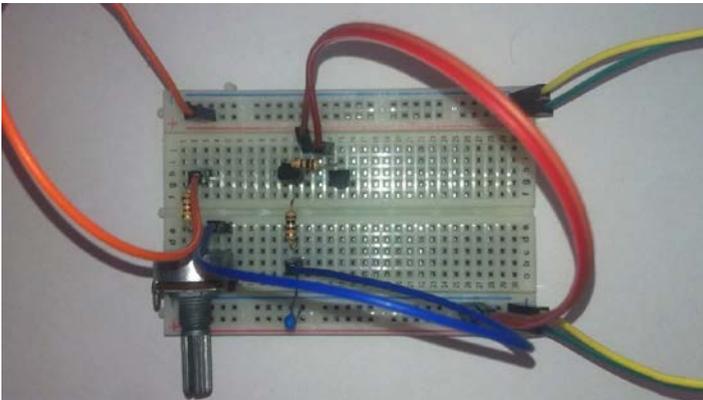
- b. Put transistors on.



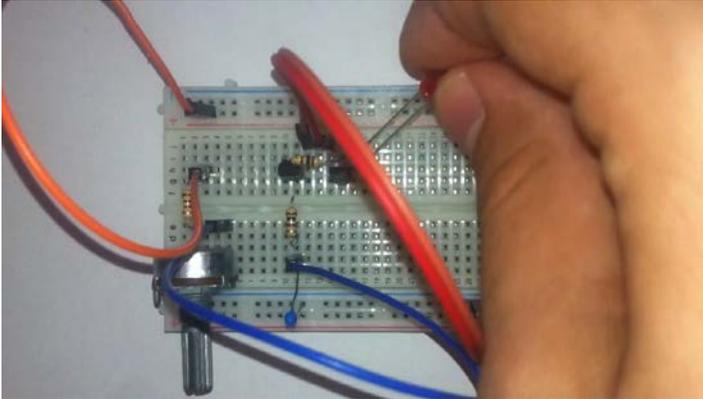
c. Connect the transistors with the cable



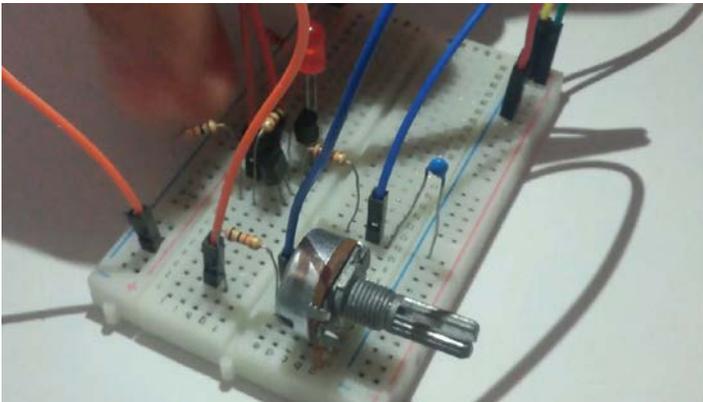
d. Hook up the NTC material to the potentiometer



e. Put it on LED material.

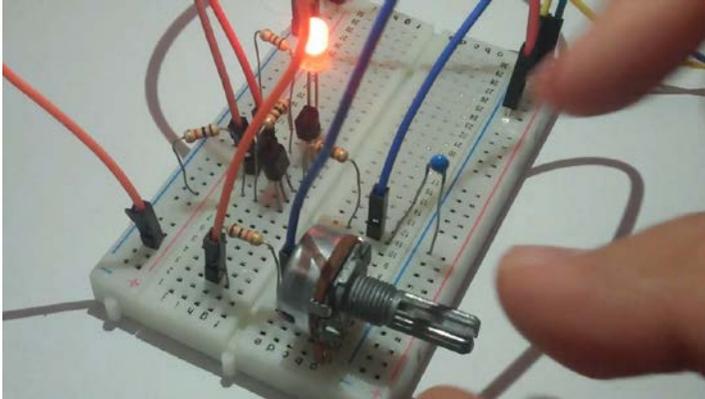


f. Connect resistance to T1 transistor.



Step 3 - Test the Circuit

Put a battery on the power line and the Led gives light.



Things To Be Aware Of

- I. Ensure that the circuit materials are intact.
- II. Be careful to montage materials to breadboard.
- III. Be careful not to damage the materials' legs when installing the circuit.
- IV. Ensure that battery's polarity.
- V. Do not heat the NTC too much.



Muhammed F. Aktas

Mobile: +90 506 126 30 35

Email: mfaktas61@hotmail.com

Hi, I'm M.Fatih;

I am studying at ~~uvf~~ ~~ES~~ and Technical Anatolian High School.

My interests; to try different things, travel, and of course electricity.

Better-Electro World is exactly what I'm looking for because I like sharing with everyone who wants to know. I share both my knowledge and I learn while sharing.



Better Electro-World is like a friendship website.

Students who cannot understand the course and students who learn the course, meet by the agency of Better Electro-World.

Ismail DURMUŞ

Email:

ismaildurmus6570@gmail.com



Hi, I am Ismail,

Samandira Vocational and
Technical Anatolian High School,

Electrical Electronics Department, 12th grade student. I live in
Istanbul, Turkey.

My interests are sports, travelling, books, reading magazines and
learning different things.

This is my second Erasmus+ experience. I am very excited and happy
because of it. I am also excited to see a different culture.

The reason for joining this project is;

To teach something, to learn better while teaching, to see different
cultures, to overcome self-confidence and to direct other people to
such projects, such opportunities.