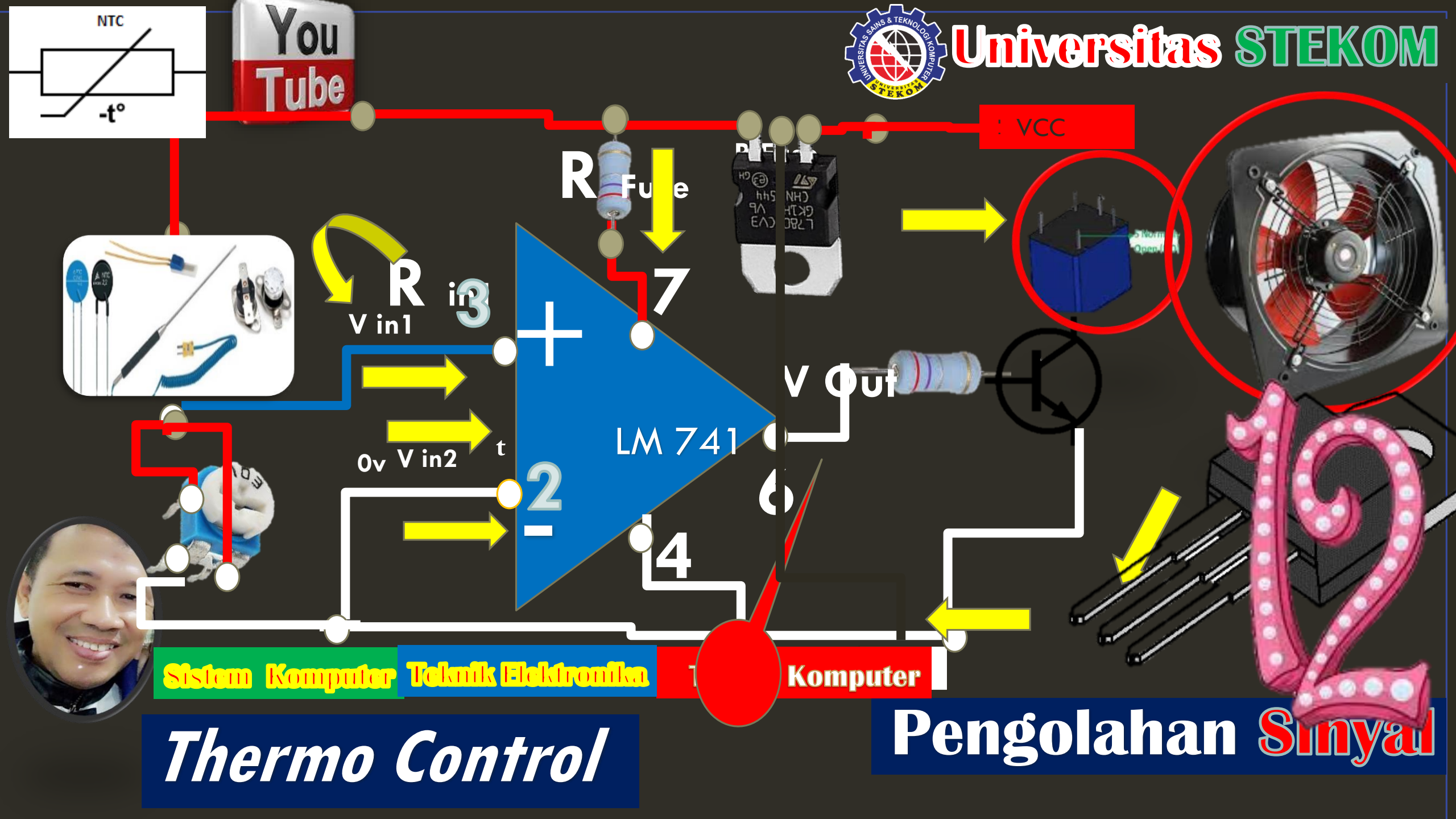
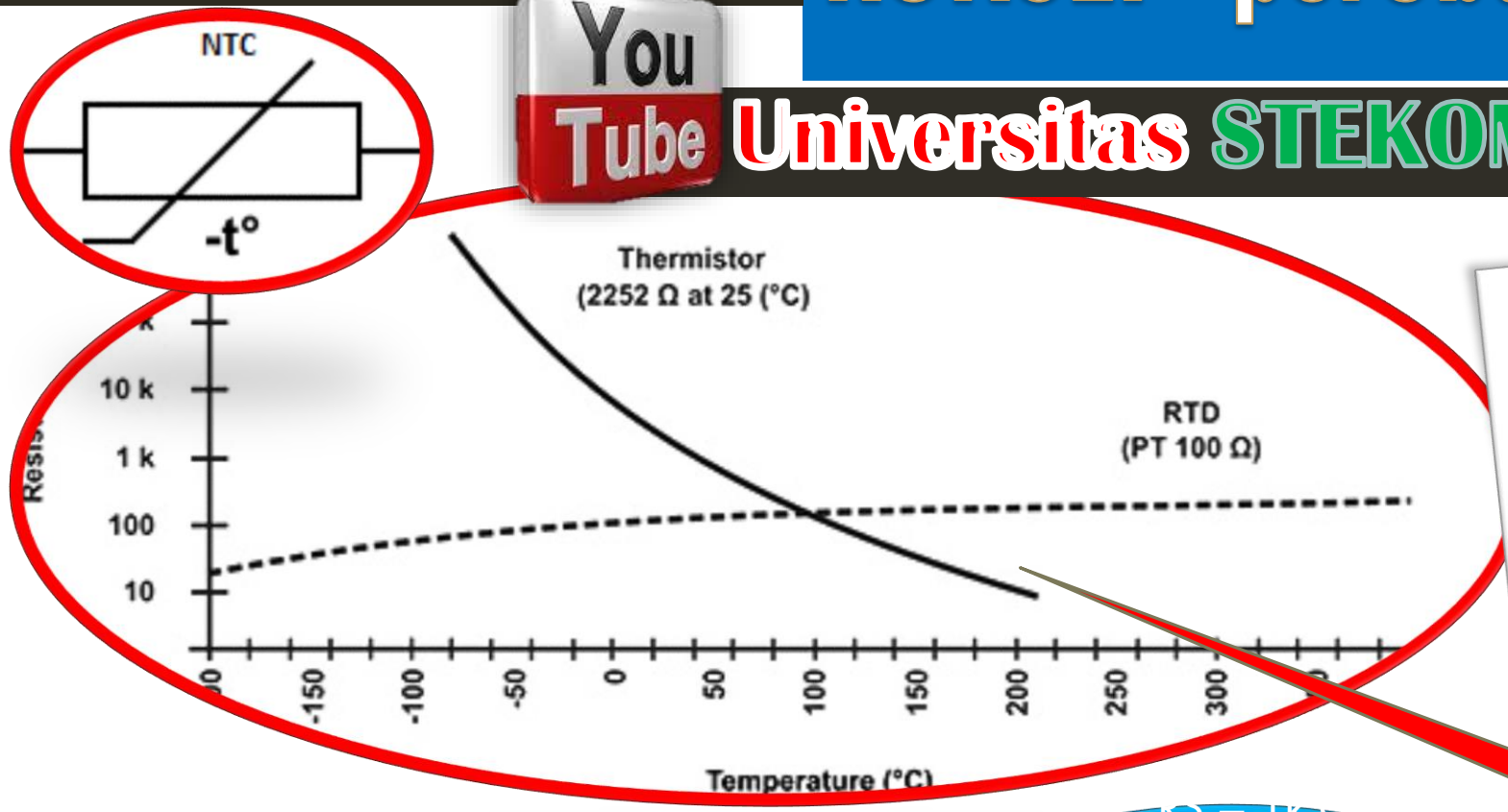

NTC
-t°
YouTube
Universitas STEKOM
: VCC
R Fuse
7
R in
V in1
3
+
-
2
0v V in2
t
LM 741
V Out
6
4
Sistem Komputer
Teknik Elektronika
Komputer
Thermo Control
Pengolahan Sinyal

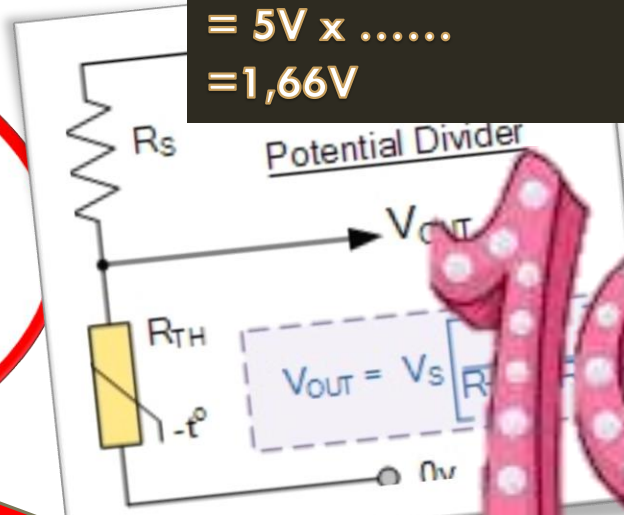
THERMO CONTROL

KONSEP perubahan tegangan

YouTube Universitas STEKOM



Vout = VS x {(RNTC : (RNTC + RS)} = 5 V x {500 : (500 + 1K)}
= 5 V x { 500 : 1500}
= 5V x .....
=1,66V



VS x {(RNTC : (RNTC + RS)}
= 5 V x {2K : (2K + 2K)}
= 5 V x { 2K : 4K }
= 5V x 0,5
=.....

R NTC = Ohm

R NTC = Ohm

Vout

12

Pengolahan Sinyal

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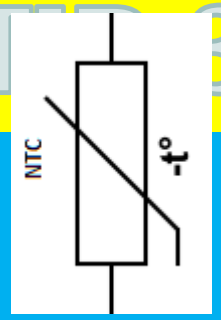
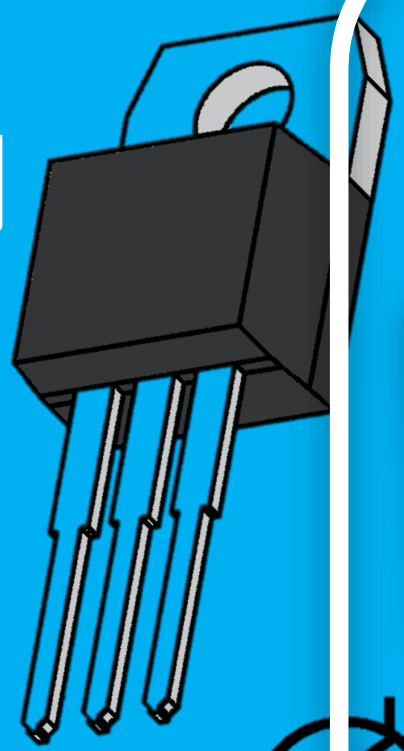
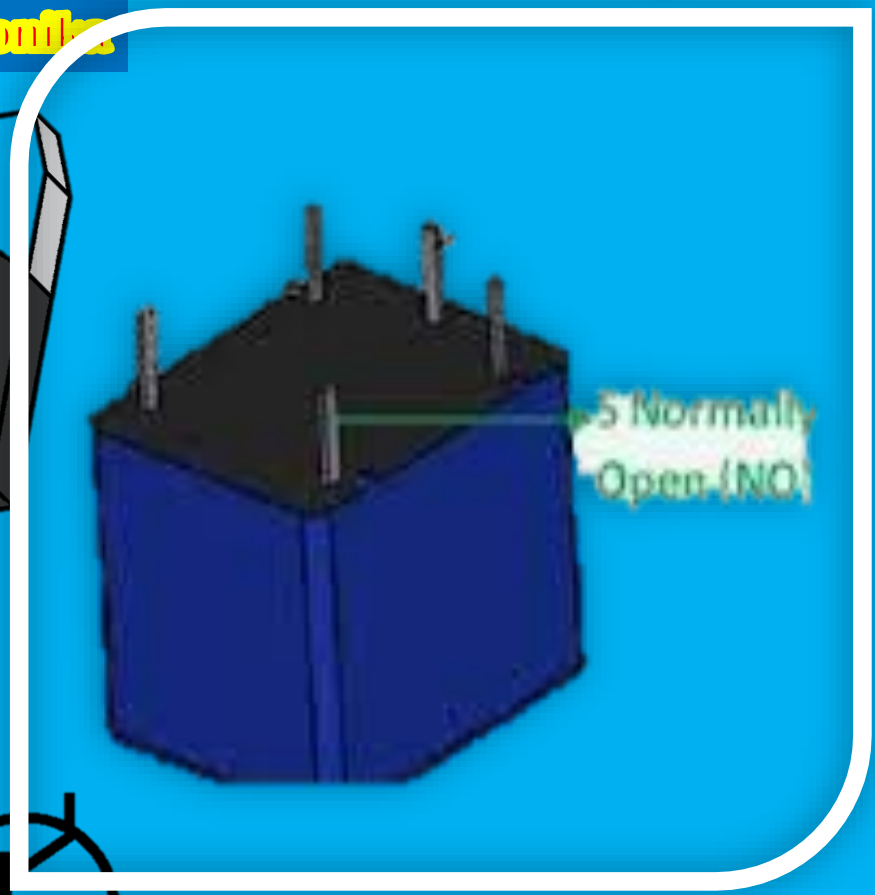
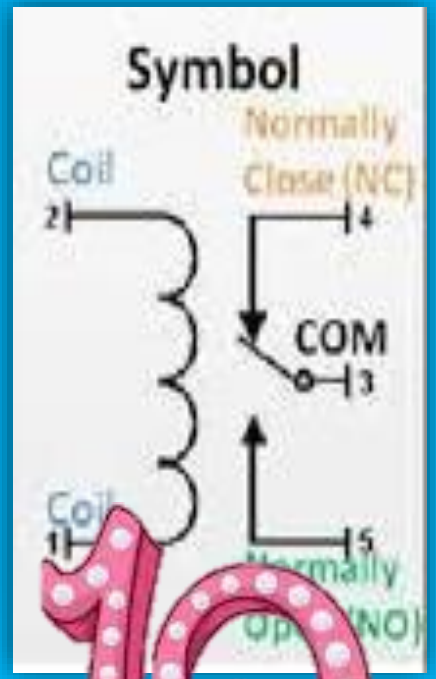
TE 31





B C E

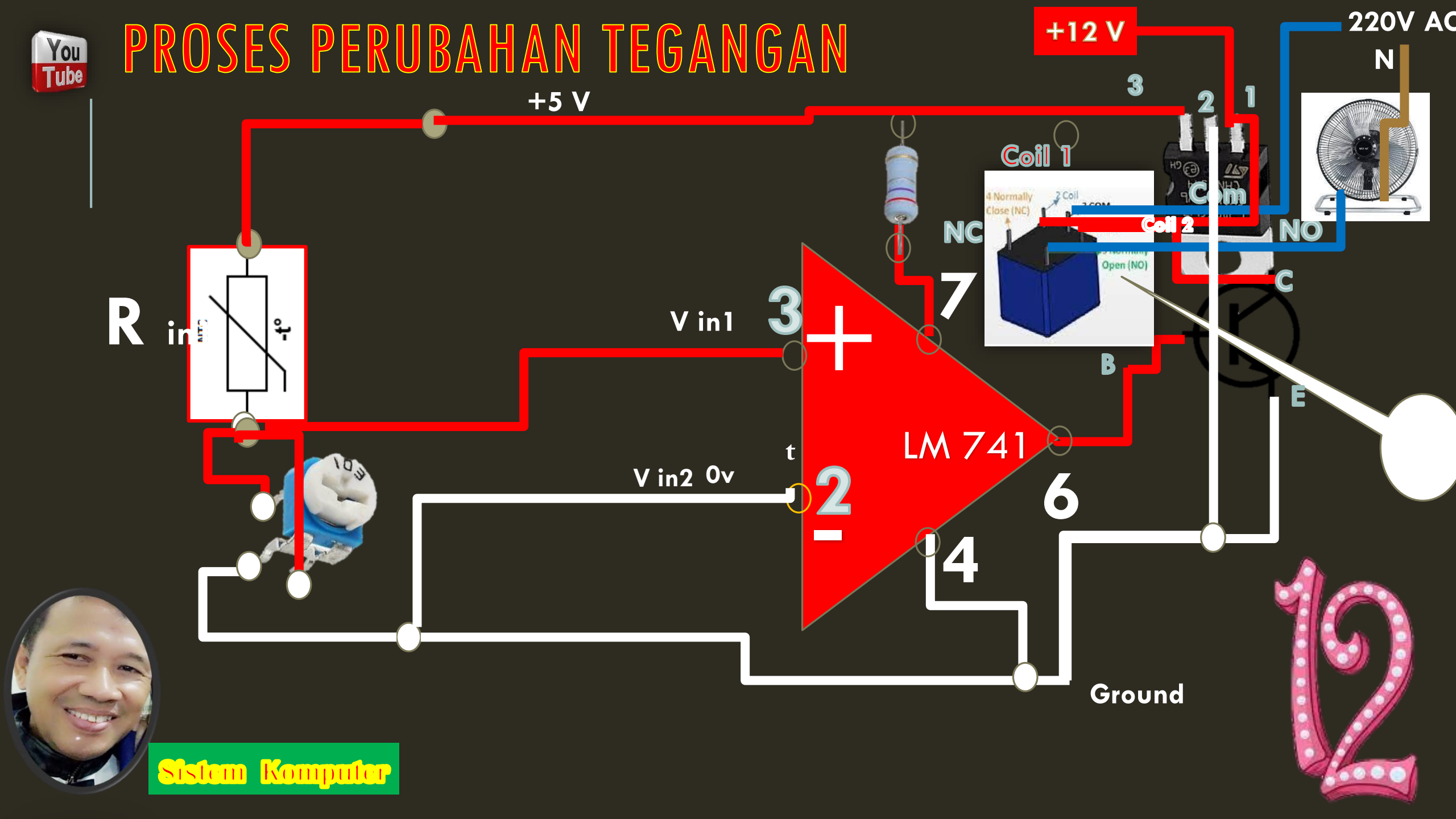




Thermo Control

12

PROSES PERUBAHAN TEGANGAN




Pengolahan Sinyal
Thermo Control
3 Out
2 Gnd
1 IN
+ VCC
Rs
R Fuse
NTC
V in1
R in1
V in1= 4,54 Volt
R1
7
3
2
LM 741
6
4
0v V in2
t
V Out
V Out
2 Coil
3 COM
1 Coil
5 Normally
Open (NO)
COM
Coil
Coil
Sistem Komputer
Teknik Elektronika
Teknik Komputer
Universitas STEKOM
12

THERMO SENSOR

Bila suhu Ruang Panas, maka R NTC mengecil mengakibatkan tegangan di In non Inverting > dari tegangan di inverting sehingga opAmp mengeluarkan tegangan positif (H) dan Tr ON relay aktif maka Com relay terhubung ke NO ***Blower / Kipas yg terpasang di NO berputar dan mendinginkan ruangan.***

Prinsip Kerja

2. Bila kemudian suhu ruang dingin maka R NTC membesar mengakibatkan arus tidak mengalir kepada R NTC dan membuat V in Non iverting tidak bertegangan V in non Inv = nol Volt /Low Logic akibatnya output comparator nol Volt Tr On relay tidak aktif NO lepas kontak dari Com Blower berhenti berputar

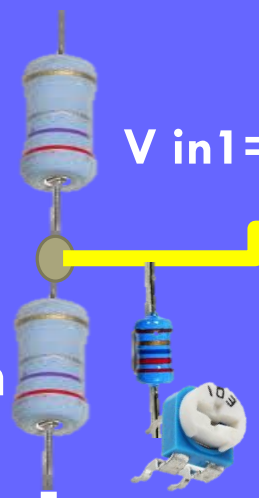
KONSEP MENGHITUNG TEGANGAN KERJA

R 1= Rs1 seri R LDR

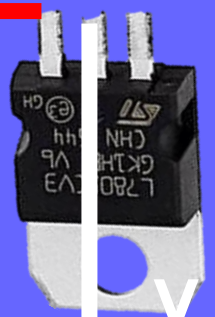
= 100 Ohm + 0 ohm =100 Ohm

R 1 1K Ohm

R 2 1 K Ohm



V in1= 4,54 Volt



V in1= R2 : (R1+ R2) x VS

V in1= 1K : (1K+ 1K) x 5V

V in1= { 1K : (1K+ 1K) } x 5V=...

V in1= (1K : 2K) x 5V=.....

V in1= 0,5x 5V=.....

V out = 4,5 V High Logic

V in 1=4,54 V

V in 2= 0 Volt

R 2= R1 seri R Trimpot

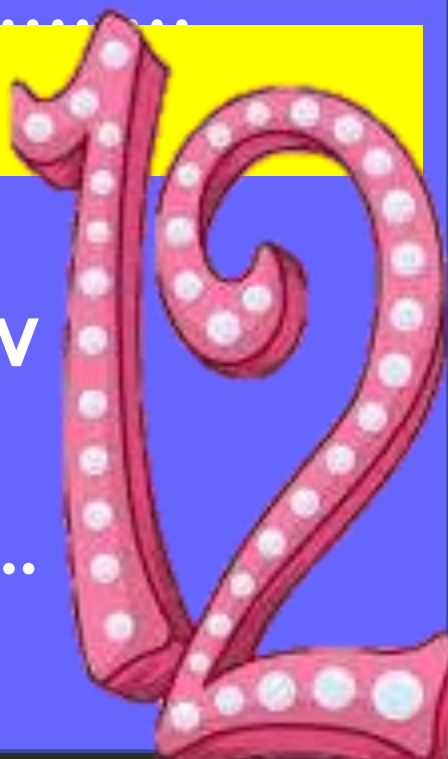
= 1K + 0 Kohm= 1K ohm

V in1 yg sebenarnya = R2 : (R1+ R2) x VS

V in1 yg sebenarnya = 1K : (100+ 1K) x 5V

V in1 yg sebenarnya = (1K : 1K1) x 5V

V in1 yg sebenarnya = ...

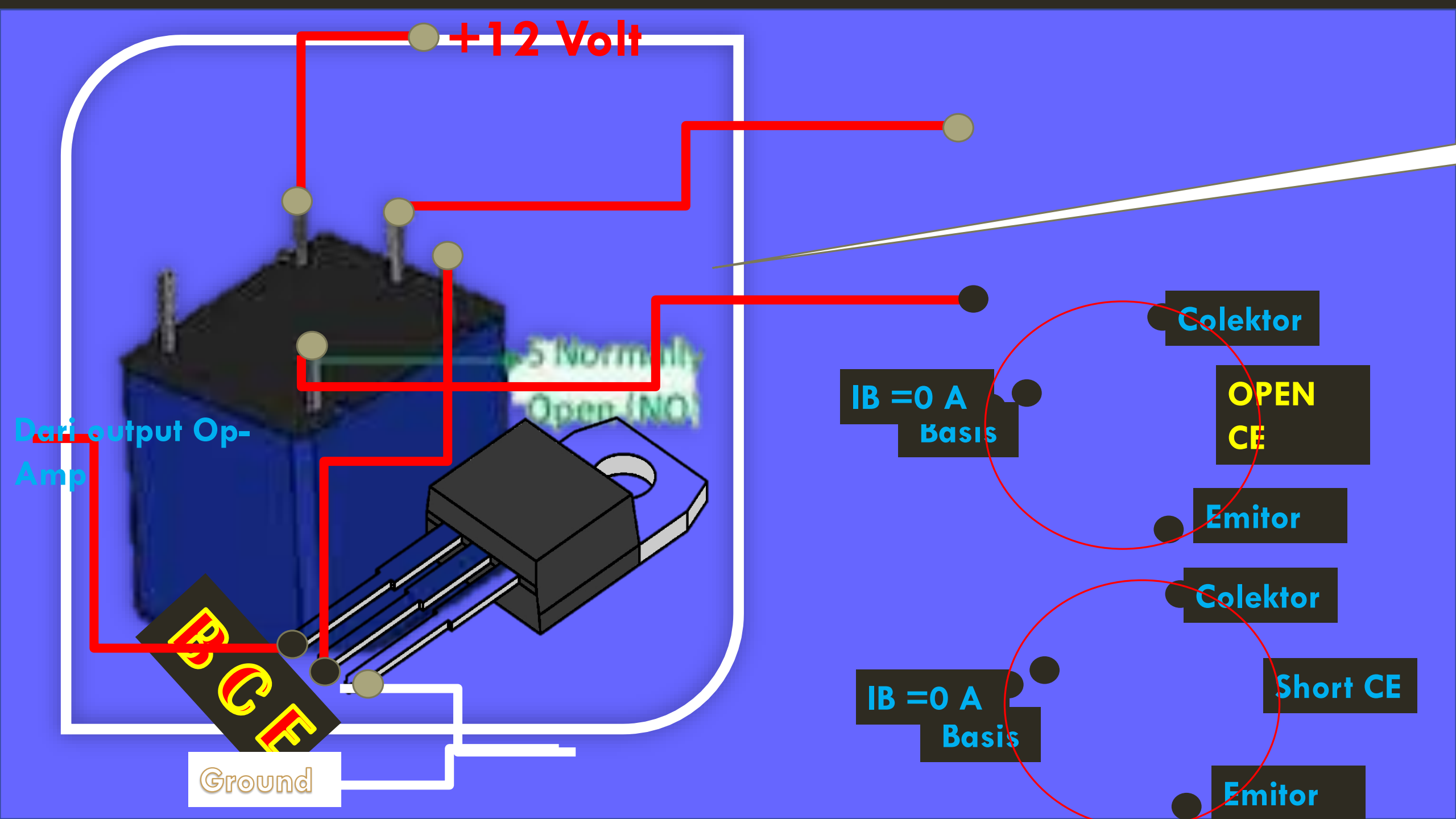


Quis12 : 1. gambarkan skema sistem otomatis saat suhu ruangan panas supllay blower mengalir tetapi saat suhu dingin suplay berhenti menggunakan sensor suhu NTC dan LM 741

2. jelaskan prinsip kerjanya

Tgl 6 Juli 2022

Subject : *Rancangan Thermo Switch _namamu_Kelasmu*


+12 Volt
Normally Open (NO)
Dari output Op-Amp
B C E
Ground
IB =0 A
Basis
Colektor
OPEN CE
Emitor
IB =0 A
Basis
Colektor
Short CE
Emitor

TABEL STATUS ON OFF TR RELAY DAN BLOWER

NO	Kondisi Ruang /mesin / Radiator /therrmo	R NTC	NON INV	INV	Output Op-Amp	Basis TR	TRansistor	Relay	Blower
1	Panas	Mengecil	H	L	H	Ada arus	ON	Aktif	berputar
2	Dingin	Membesar	L	L	L	Tidak ada arus	OFF	Tidak Aktif	Berhenti berputar/ tidk berputar