# *Controller for 70cm PA with MRF6VP3450H by ON1BTE*

I am using 3 Fans (230VAC). I 've build a fan speed regulator which is controlled by the PWM output from the Arduino. The higher the temperature, the higher the fan speed.
The Arduino measures the temperature, the current, 50V power supply and the bias.
The Arduino could also disable the bias. Scheme attached at the end of this document.

3x 230VAC Fan, Fan Speed Regulator (middle) en 10VDC (left) - to make 5VDC with


70cm PA, Controller and LCD.
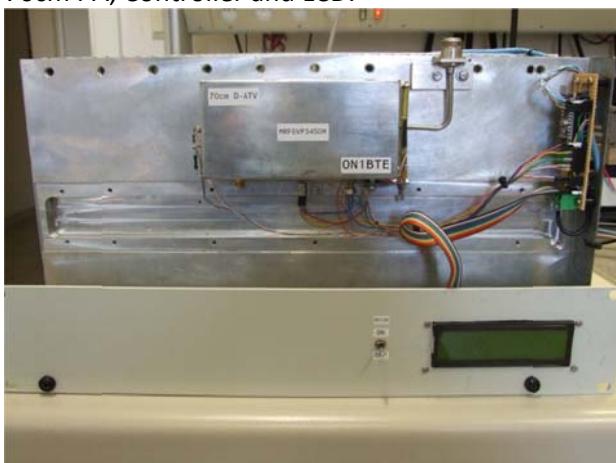
Inside the PA.
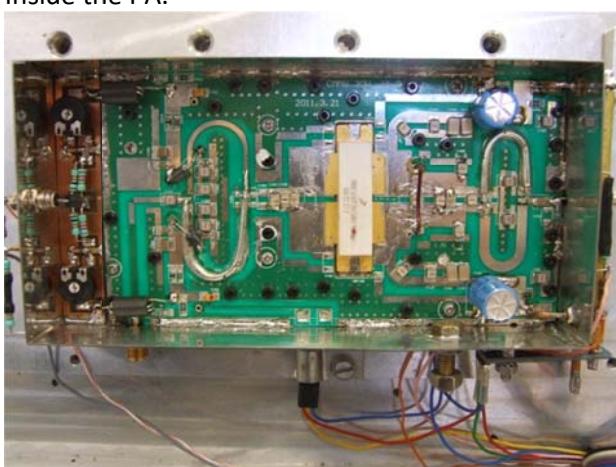
Ubias (50VDC) measuring (divider → :10,24)
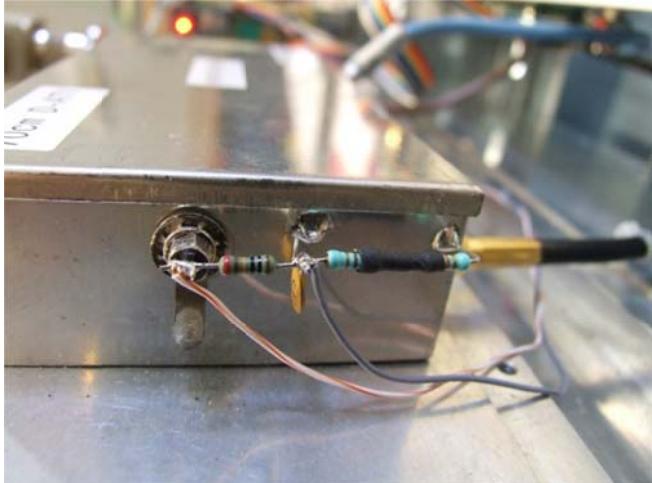
Usupply (50VDC) measuring (divider → :10,24)
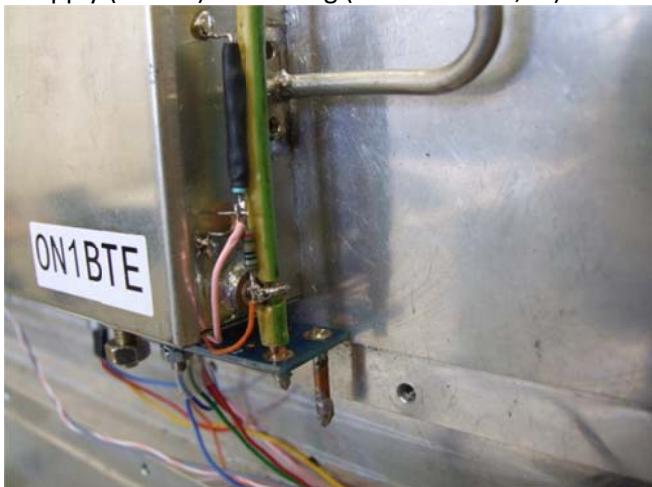
Current Sensor ACS712 (66mV/A) – max 30A.
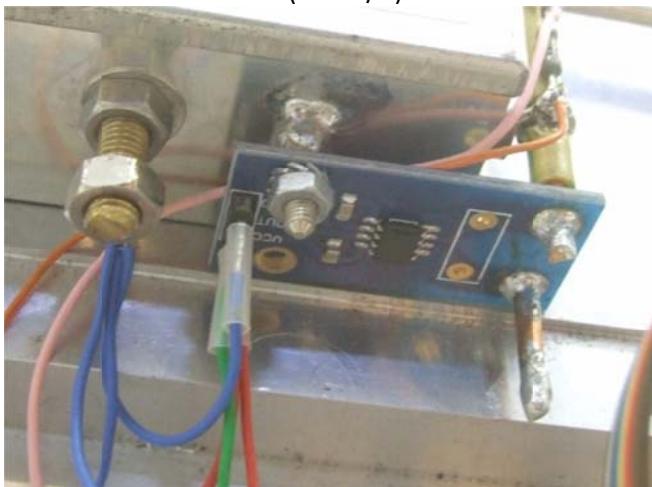
Temperature sensor DS18B20

Controller board (Arduino ProMini)
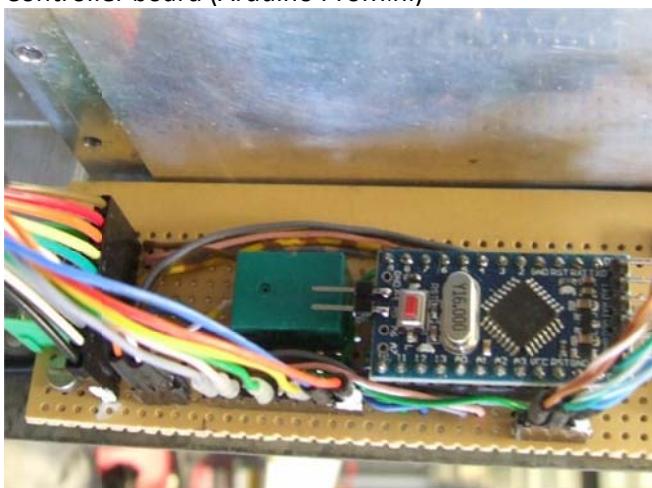
LCD (Rear) and Bias On/Off switch

Startup

PA in action …   ^ → Bias On   * → Fan On

If you want the Arduino Sketch …

E-mail to: on1bte@telenet.be

Arduino
Pro Mini

+5V

+10V

7805

+5V

D12

D11

D10

D9

D8

D7

D6

D5

D2

A3

A2

A0

+5V

LCD
16x2

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

+5V

BC557B

+5V

30 Ω

PWM
output
to fin reg.

3AX16

5V relais

Ubias

Ubias

Ubias
on/off

Temp
Sens.

DS
18
B20

+5V

+5V

4k7

From Current Sens ACS712
Vsupply (50 V DC)

100nF

100nF

100k

100k

10K

820

10K

820

Ubias
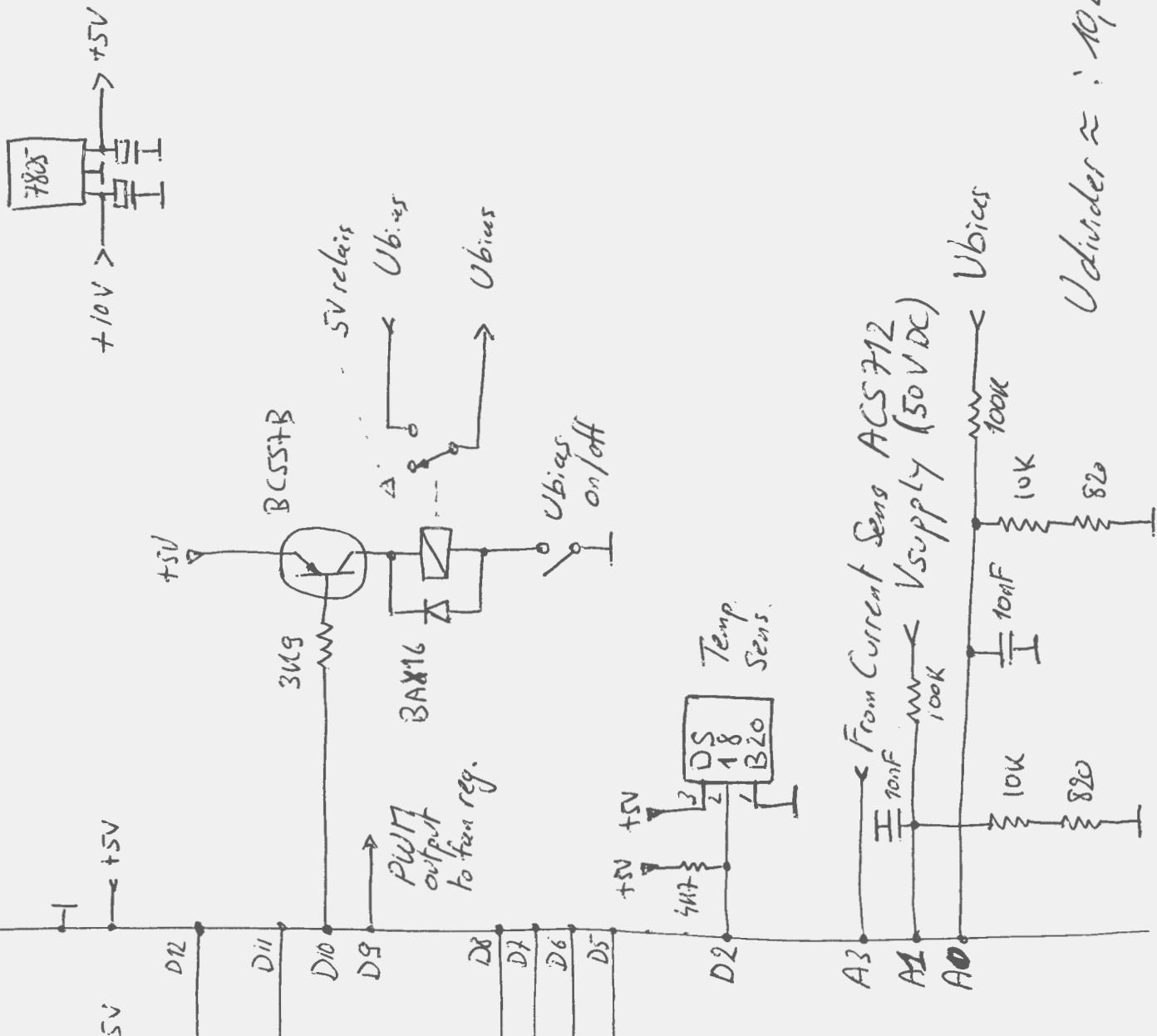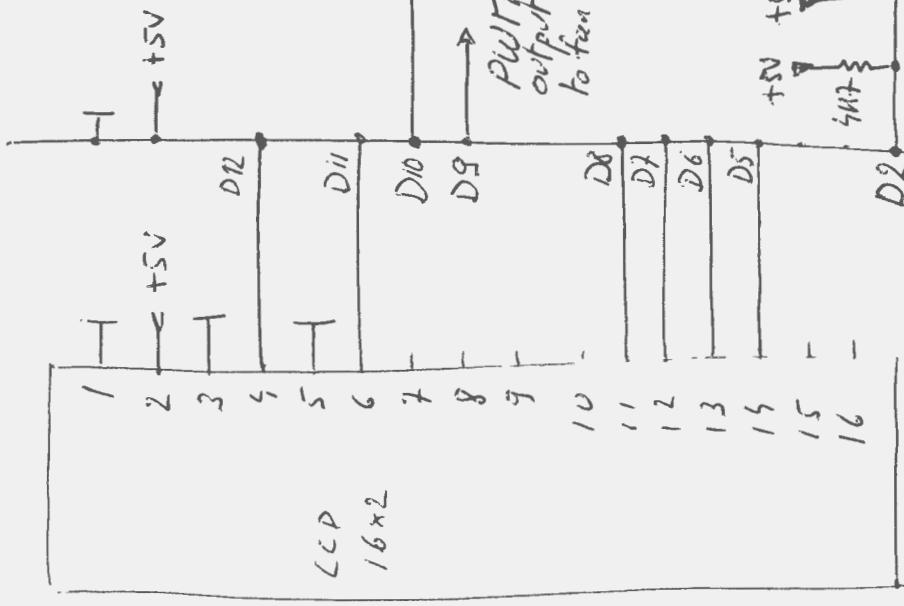
Udivider ≃ 1024

ON1BTE
4/11/2013

MRF6UP35UH
Controller

Nuldoorgangsdetectie   Ramp generator   Comparator   Triac sturing

230V AC

100n 1/3w

100n 1/3w

230V AC

SFH620-3x

BC547B

27K   +5V

100K

BC 547B

+5V   10K

IT 100THz

$T = \dfrac{2/3 \, Vcc \cdot R_2}{R_1 \cdot Vcc - V_{BE}} (R_1 + R_2)$

NE555

+5V

+5V   22K   R_E

+5V   47K   R_1

BC 547B

+5V   100K   R_2

100n

10un

3,2V

$T = \dfrac{2/3 \, Vcc \cdot R_2}{R_1 \cdot Vcc - V_{BE}} (R_1 + R_2) \cdot C$

+5V

3 −

4

5 +   ¼ LM339

2

PWM output from Arduino pin g (optptm.)

10µF

4A9

Tr2 470

+5V   1

2   Mcc3052

6

4   1K8

BT136   39Ω/2w

10n/650V

Fan
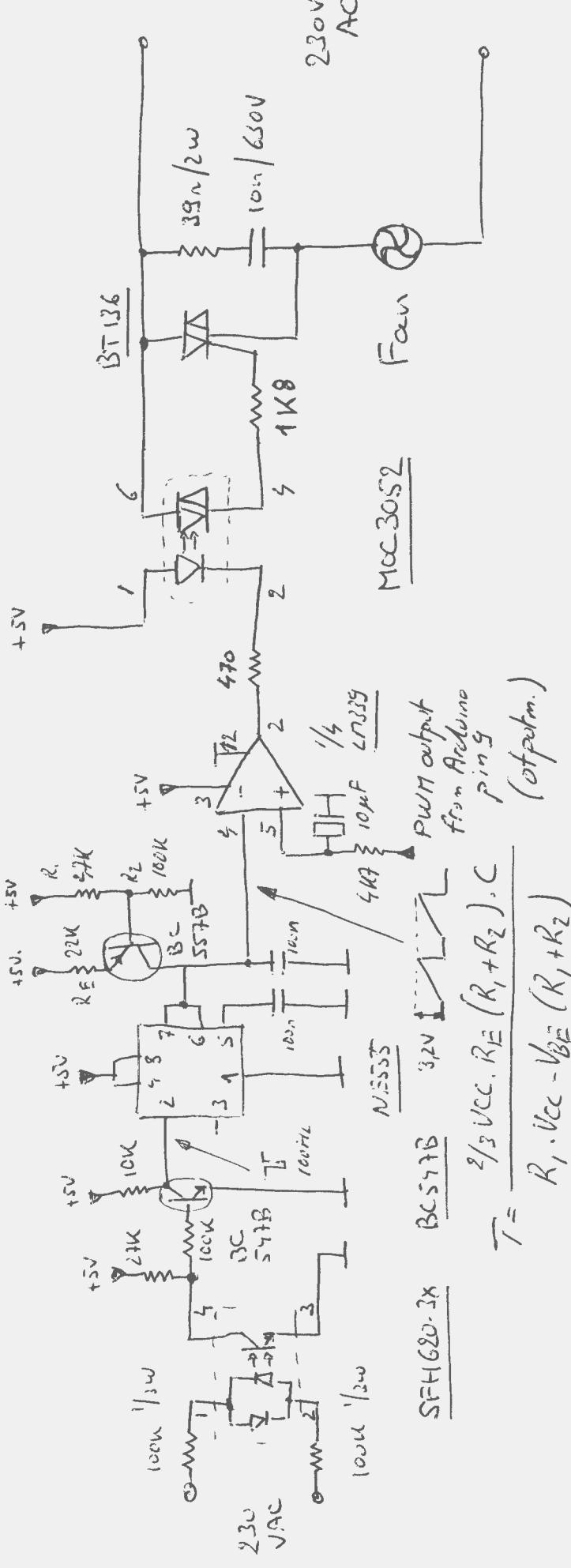
230V AC

Fan Speed Regulator   (230VAC)

ON7BTE
4/11/2017

Ub
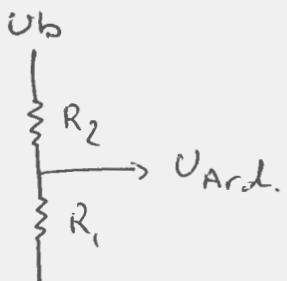
$$U_{Ard} = Ub \cdot \frac{R_1}{R_1 + R_2}$$

$$\Rightarrow \frac{U_{Ard}}{Ub} = \frac{R_1}{R_1 + R_2}$$

$$\Rightarrow \frac{5}{51,2} = \frac{1}{10,24}$$

$$of \quad R_1 = \frac{R_2}{9,24}$$

Ub $R_2 = 100K$ $R_1 = 10,8225 K$

Arduino Input max 5V

$0V \rightarrow 0$

$5V \rightarrow 1023$ 1 step = 50mV $\Rightarrow$ 1024 steps = 51,2V (max)

Ub 51,2V max

100K

10K

820

100nF

$U_{Arduino}$
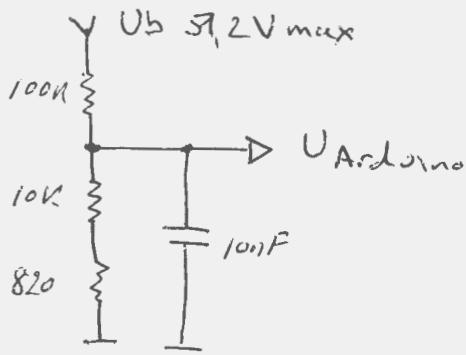
$$51,2 \cdot \frac{10820}{110820} = 4,99895V$$

$$\underline{Voor\ 50V}$$

$$50 \cdot \frac{10820}{110820} = 4,8818V \quad (\rightarrow 999,79)$$