# Notes

12/07/21

* initial fork of Trackduino

03/21/22

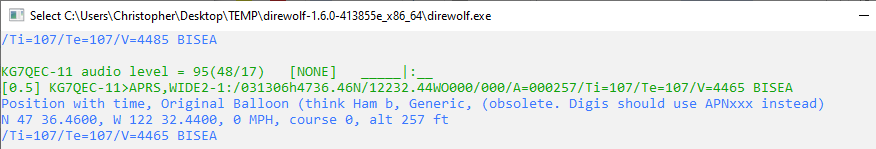
* Tried to build/compile. Ran into error.

03/22/22

* Got radio transmitting

03/23/22

* Got Direwolf decoding position measurements. Temperature and Vin seem fishy. We might need to rewrite the temperature code to use the thermocouples instead of the LM60 sensors.
* Got Pinpoint APRS application to listen to KISS TNC packets and display position.
* Modified Direwolf config file so a .log file is generated. We can probably decode this via Matlab.



04/17/22

* Tried to get temperature sensors working. Still not working. Both still return a -127. Confirmed that this is the value via serial monitor.

04/18/22

* Fixed temperature sensor. It turns out I was using the wrong resistor.

**aprs.cpp**

ax25\_send\_string("/Ti=");

snprintf(temp, 6, "%d", sensors\_int\_lm60());

ax25\_send\_string(temp);

**sensors\_avr.cpp**

int sensors\_lm60(int powerPin, int readPin)

{

pin\_write(powerPin, HIGH); // Turn the LM60 on

analogReference(INTERNAL); // Ref=1.1V. Okay up to 108 degC (424 + 6.25\*108 = 1100mV)

analogRead(readPin); // Disregard the 1st conversion after changing ref (p.256)

delay(10); // This is needed when switching references

int adc = analogRead(readPin); // Real read

pin\_write(powerPin, LOW); // Turn the LM60 off

int mV = 1100L \* adc / 1024L; // Millivolts

switch(TEMP\_UNIT) {

case 1: // C

// Vo(mV) = (6.25\*T) + 424 -> T = (Vo - 424) \* 100 / 625

return (4L \* (mV - 424) / 25) + CALIBRATION\_VAL;

case 2: // K

// C + 273 = K

return (4L \* (mV - 424) / 25) + 273 + CALIBRATION\_VAL;

case 3: // F

// (9/5)C + 32 = F

return (36L \* (mV - 424) / 125) + 32 + CALIBRATION\_VAL;

}

}

int sensors\_ext\_lm60()

{

return sensors\_lm60(EXTERNAL\_LM60\_VS\_PIN, EXTERNAL\_LM60\_VOUT\_PIN);

}

int sensors\_int\_lm60()

{

return sensors\_lm60(INTERNAL\_LM60\_VS\_PIN, INTERNAL\_LM60\_VOUT\_PIN);

}

**config.h**

// Pin mappings for the internal / external temperature sensors. VS refers

// to (arduino) digital pins, whereas VOUT refers to (arduino) analog pins.

#define INTERNAL\_LM60\_VS\_PIN 6

#define INTERNAL\_LM60\_VOUT\_PIN 0

#define EXTERNAL\_LM60\_VS\_PIN 7

#define EXTERNAL\_LM60\_VOUT\_PIN 1

// Units for temperature sensors (Added by: Kyle Crockett)

// 1 = Celsius, 2 = Kelvin, 3 = Fahrenheit

#define TEMP\_UNIT 1

// Calibration value in the units selected. Use integer only.

#define CALIBRATION\_VAL 0

// Resistors divider for the voltage meter (ohms)

#define VMETER\_R1 10000

#define VMETER\_R2 3300

// Voltage meter analog pin

#define VMETER\_PIN 2

**ax25.cpp**

void

ax25\_send\_string(const char \*string)

{

int i;

for (i = 0; string[i]; i++) {

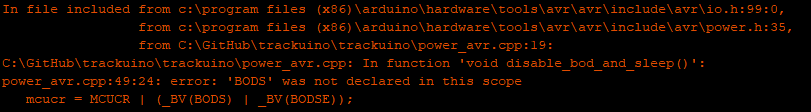
ax25\_send\_byte(string[i]);

}

}

# Troubleshooting

* BODS was not declared in this scope



Might be an issue with the Board = Arduino Mega. Compiles OK with Board = Arduino Nano.