Physics 398DLP airborne sensor package

microphone

To Adalogger A1

MIC

GND

OUT

GND

VCC

3.3V

C10 0.1uF

C1 0.1uF

RST

3.3V

AREF

GND

N$A0

MIC

GUVA

N$A3

N$SCK

N$MOSI

N$MISO

GND

SoCool

RST
3V
AREF
GND
A0
A1
A2
A3
A4
A5
SCK
MOSI
MISO
RX
TX
GND2

BAT
EN
USB
#13
#12
#11
#10
#9
#6
#5
SCL
SDA

Adalogger M0

BAT
EN
USB
GPS_PPS
LCD_RS
LCD_E
LCD_DB7
LCD_DB6
LCD_DB5
LCD_DB4
I2C_SCL
I2C_SDA

GND

A0 is also the DAC output.
I will reconfigure A5 as a digital output to control the 74HC157 mux.
I will also reconfigure A4 as a digitial input to look at a pusbutton.

GND

pushbutton

PUSHBUTTON

10k R1

3.3V

UV sensor:
to Adalogger A2

GND

AOUT

5.0V

GUVA

C20 0.1uF

GUVA UV

PIN+

AAA

PIN-

3.3V

AAA battery holder

AAA battery holder

AAA battery holder

4.8V

GPS_PMS_SELECT

LOW to select GPS
HIGH to select PMS

GPS_OR_PMS_TX

ADALOGGER_TX

GPS_TX

3.3V

VBAT

EN

TX

RX

GND

PPS

Ultimate GPS

GPS_PPS

0.1uF C9

GND

3.3V

Note that TX <--> RX

0.1uF C8

VCC

GND

SET

RXD

TXD

RST

NC1

NC2

PMS5003 airborne particulates

NC

NC

PSM_TX

PMS5003 sends data once per second down its TX output. It doesn't receive any data. The device needs 5V, not 3.3V.

U$2

1A 1B 2A 2B 3A 3B 4A 4B

1Y 2Y 3Y 4Y

VCC GND

A/B G

C2 0.1uF

3.3V

GND

ABAR/B

GBAR

SN74HC157N quad mux

GND

P398DLP_74HC157N_DEV

Nets that span sheets 1 and 2:
3.3V, GND, I2C_SDA, I2C_SCL

C6 0.1uF

LCD

U40

GND
5V
VO
RS
R/W
E
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
PULL
NC

contrast-setting potentiometer

P398DLP_TRIMPOT_DEV

GND

3.3V

LCD_RS

LCD_E

LCD_DB4

LCD_DB5

LCD_DB6

LCD_DB7

Place LCD with pins at TOP. Left-most pin is 1, right-most is 16.

These allow additional connections to the processor as desired

JP5

GND
3.3V
I2C_SCL
I2C_SDA
4.8V
GUVA
GND
PSM_TX

cool

JP6

creamy

Use these connectors to jump from one board to another after cutting them apart.

JP3

RST
3.3V
AREF
GND
N$A0
MIC
GUVA
N$A3
PUSHBUTTON
GPS_PMS_SELECT
N$SCK
N$MOSI
N$MISO
GPS_OR_PMS_TX
ADALOGGER_TX
GND

16pin

JP4

BAT
EN
USB
GPS_PPS
LCD_RS
LCD_E
LCD_DB7
LCD_DB6
LCD_DB5
LCD_DB4
I2C_SCL
I2C_SDA

12pin

Sheet 1 will contain the Adalogger and non-I2C parts.
Sheet 2 will display I2C components.

George Gollin
University of Illinois at Urbana-Champaign
2019

p398dlp_data_Adalogger_v01

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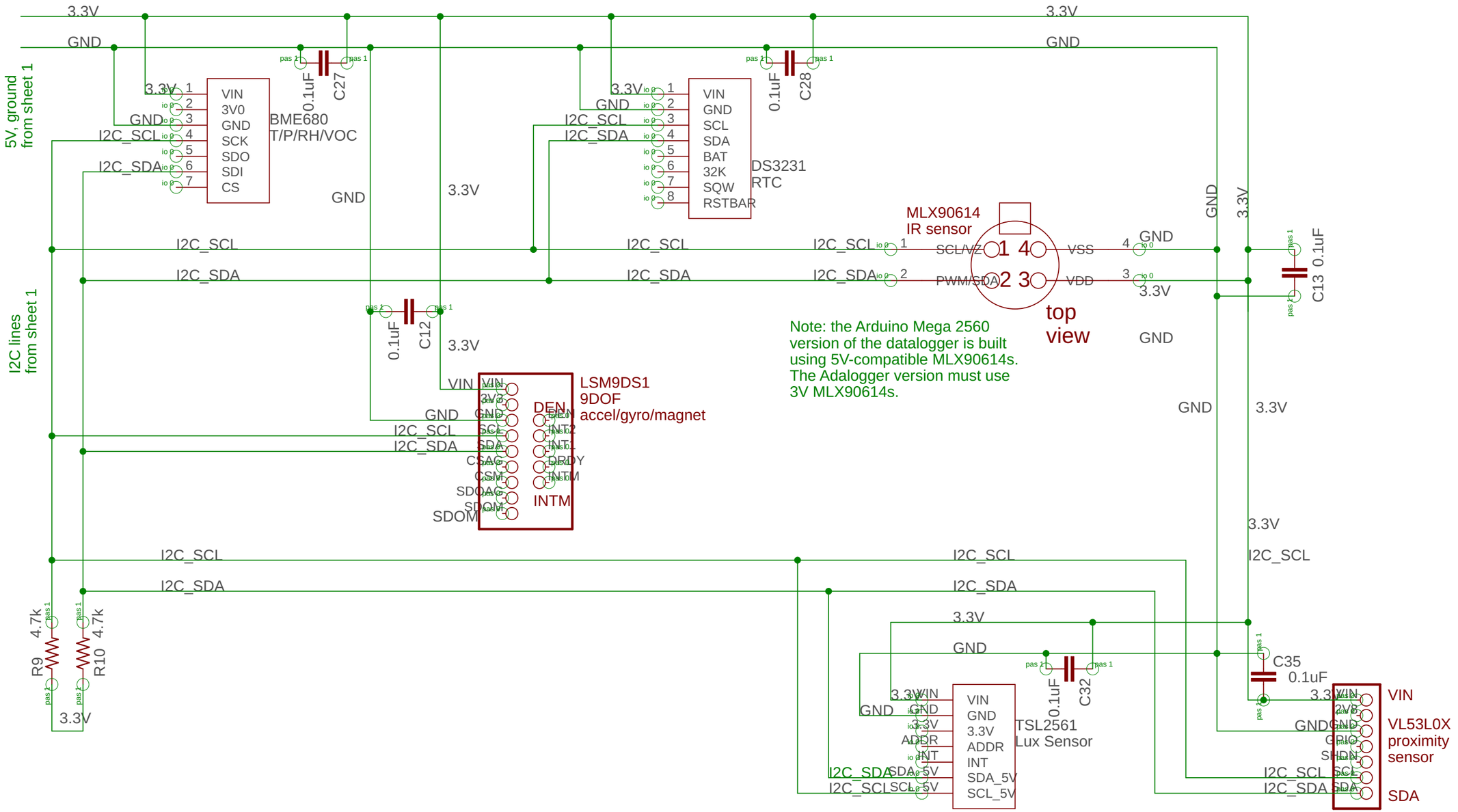
Sheet: 1/2



I2C device	comment	address
BME680	T/RH/P/VOC	0x76
DS3231	real time clock	0x68
LSM9DS1	3 axis accel/magnetometer/gyro	0x1E
MLX90614	IR sensor	0x5A
TCA9548A	I2C multiplexer	0x70
TSL2561	Luminosity/Lux/Light sensor	0x39 (need jumpers!)
VL53L0X	Time of Flight Distance Sensor	0x29

Nets that span sheets 1 and 2:
3.3V, GND, I2C_SDA, I2C_SCL

Sheet 1 contains the Adalogger and non-I2C parts.
Sheet 2 contains I2C components.

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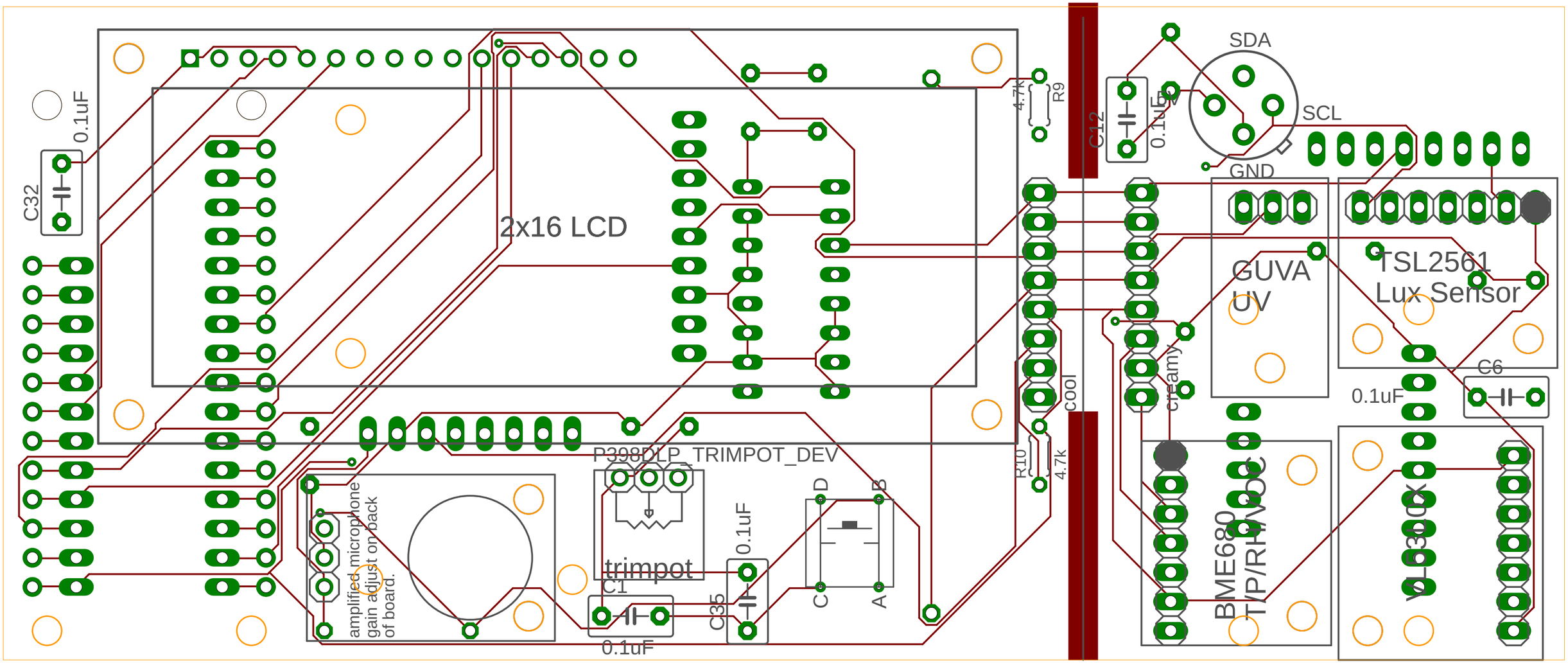
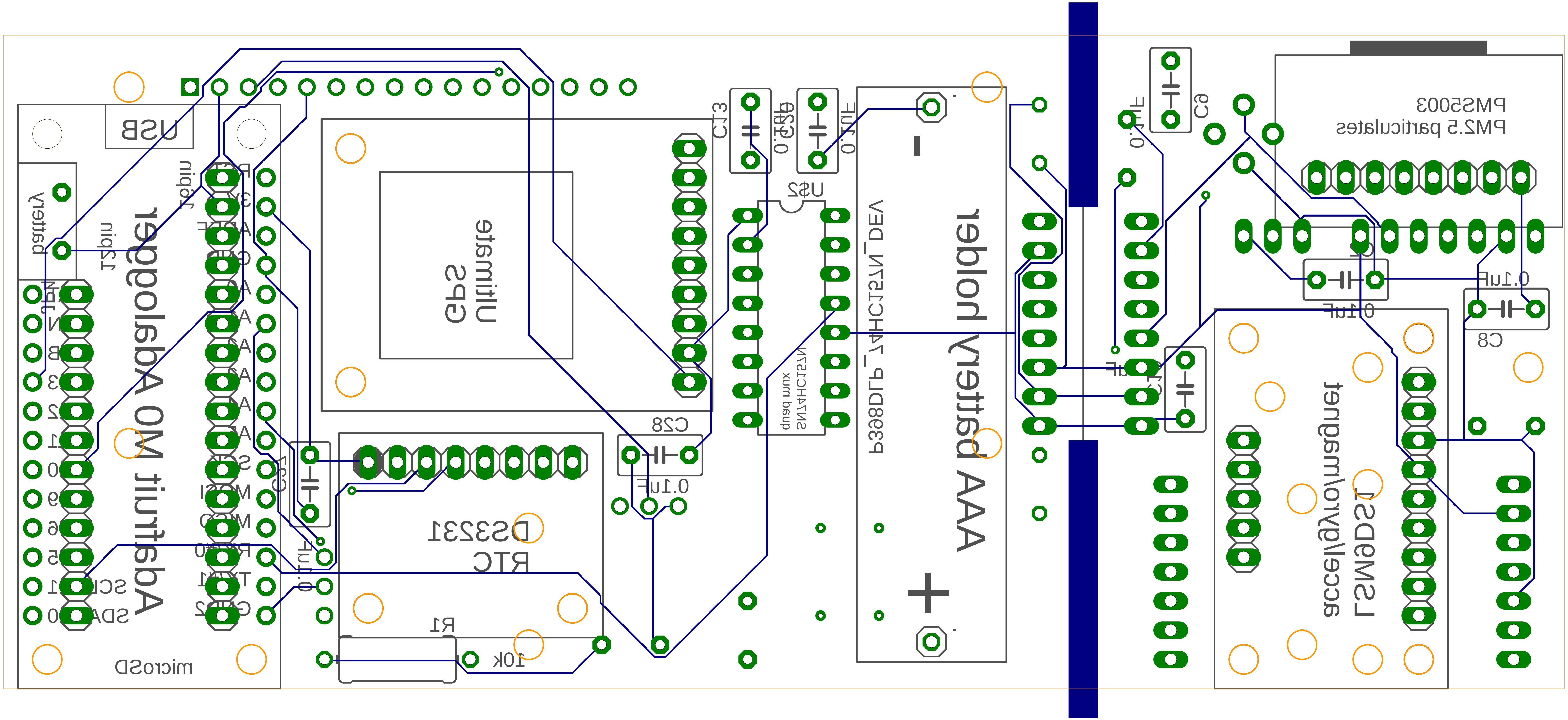
2019

p398dlp_data_Adalogger_v01

not saved!

Sheet: 2/2


2x16 LCD
C32
0.1uF
4.7k
R9
C12
0.1uF
SDA
SCL
GND
GUVA
UV
TSL2561
Lux Sensor
C6
0.1uF
creamy
cool
R10
4.7k
BME680
T/P/RH/V
P398DLP_TRIMPOT_DEV
trimpot
C1
0.1uF
C35
0.1uF
D
B
C
A
amplified microphone
gain adjust on back
of board.



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