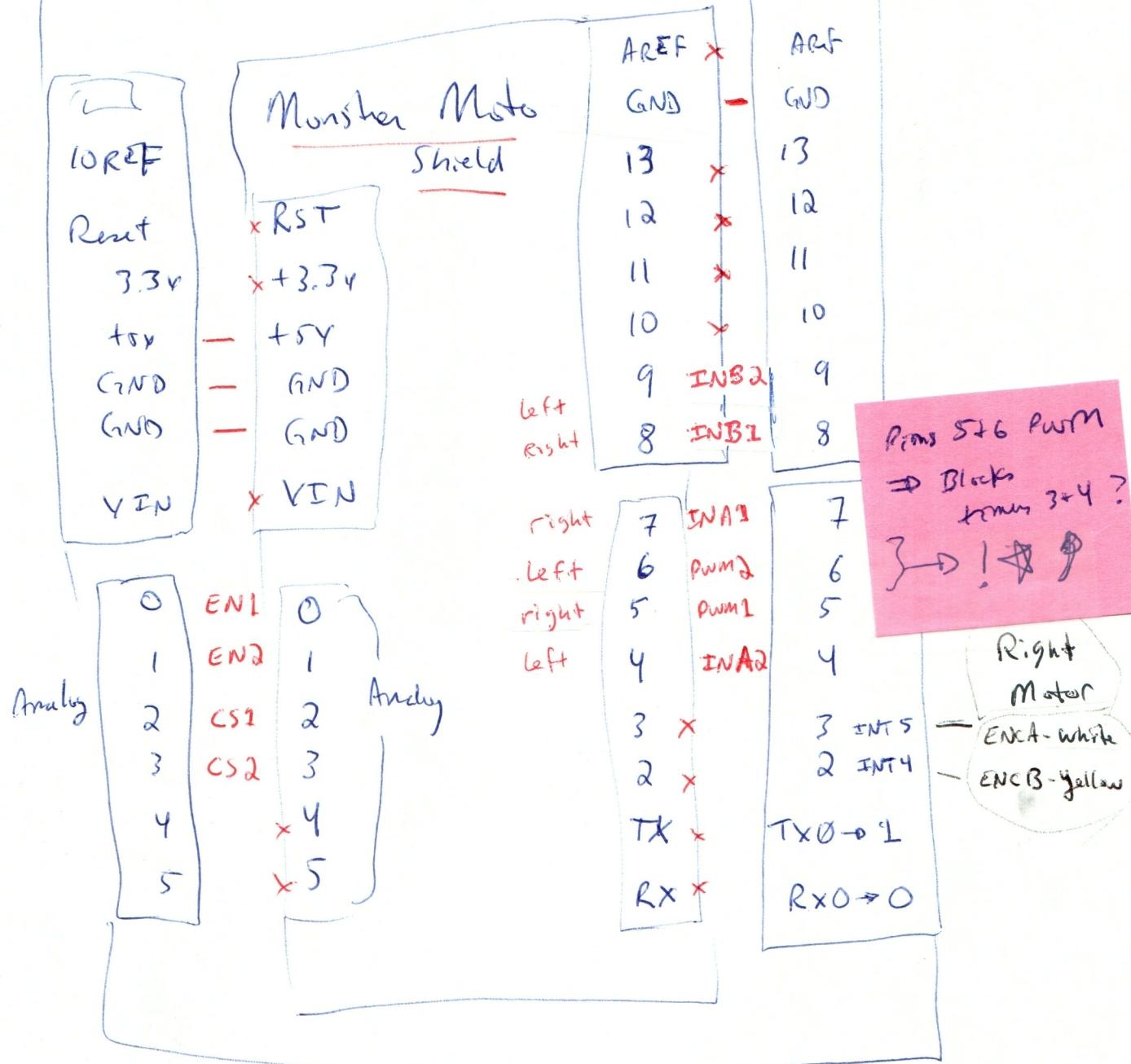


Androho Mega

2560



Arduino Mega

2560

TX3	14
RX3	15
TX2	16
RX2	17
TX1 INT3	18
RX1 INT2	19
SDA INT1	20
SCL INT0	21

Keep
2-wire
open

Change V.S.
Club Robot
code

ENCA - White
ENC B - Yellow

Left
Motor

Arduino
UNO +
Display

TX

RX

GND

TX2

RX2

GND

RPi3

Arduino
Mega

INT3 D 18

INT2 D 19

+5

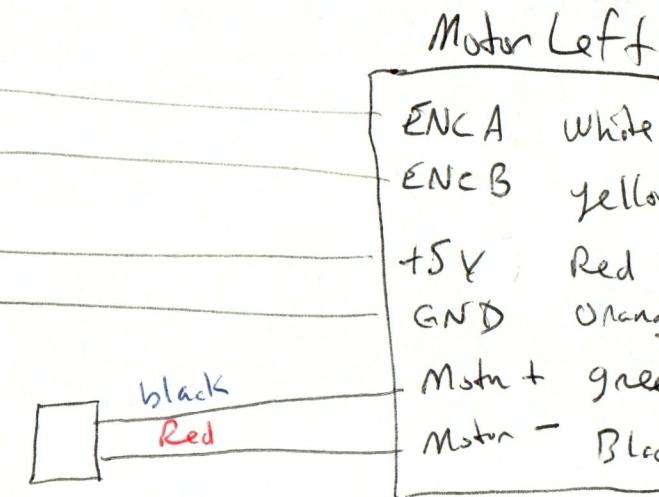
GND

INT5

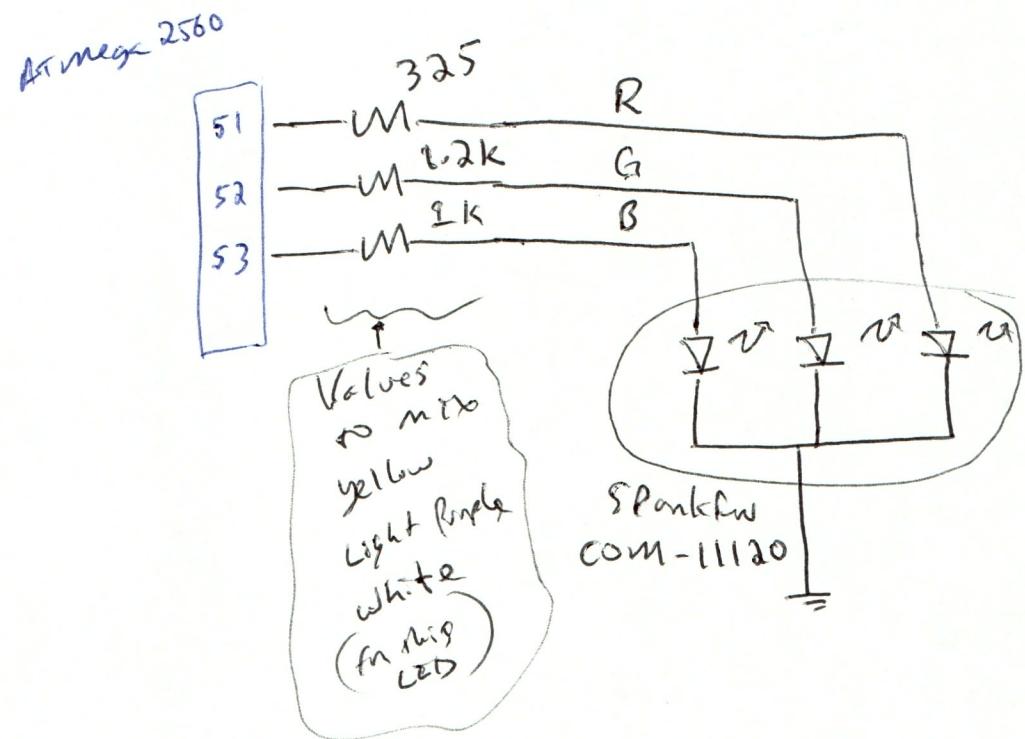
INT4

D 3

D 2



Processor
Status
Light
2019 June 16



① 2019 June 23
commit c786d6e
+ changes

"before next commit"

User
Space

Set Motor
by PWM
PWM Space
Left PWM Right

+100
Velocity
-100

Set point
Limited by
maxTurnPWM
and
maxTurnEncelTicks

Throttle
Velocity
-100

~~Motor space~~
Sign

Vel Loop Set Point
Encoder Space
Enc. Ticks / 20 ms
Left Right

-80 -80
+80 +80

-80 -80

-78 -78
+78 +78

~~Robot space~~
Sign ~~Motor space~~

Encoder
Velocity
Enc. Ticks / 20 ms
Left Right

-150 -150
+150 +150

-150 -150

+150 +150

Motor PWM

Left Right

80 ccw 80 ccw

80 cw 80 cw

255 ccw 255 cw

255 cw 255 ccw

Joystick
to

2019
0.t6

Joystick Control

Velocity loop
Set Points

13

Left

Right

FWD



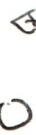
126
128
130

No Movement

255

BKWD

left



right

126..130

255

No
movement

Joystick

Throttle

0 → +100

125 → +1

126..130 → 0

131 → -1

255 → -100

$$-0.792 \times +100 = y$$

$$-0.798 \times +103.5 = y$$

Joystick

turn Velocity

0 → -100

125 → -1

126..130 → 0

{ 131 → +1

{ 255 → +100

$$+0.792 \times -100 = y$$

$$+0.798 \times -103.5 = y$$

Joystick Control

2/3

③

Throttle

$$ax + b = y$$

$$0 + 100 = 100$$

$$a \cdot 125 + 100 = +1$$

$$-0.792 \times x + 100 = y$$

$$a \cdot 131 + b = -1$$

$$a \cdot 255 + b = -100$$

$$b = -1 - a \cdot 131$$

$$a \cdot 255 - 1 - a \cdot 131 = -100$$

$$a(255 - 131) - 1 = -100$$

$$a = \frac{-99}{255 - 131} = -0.8$$

~~-0.8 x +~~

$$-0.798 \times x + 103.5 = y$$

Thrust Stick Control

3/3

turn velocity

$$ax + b = y$$

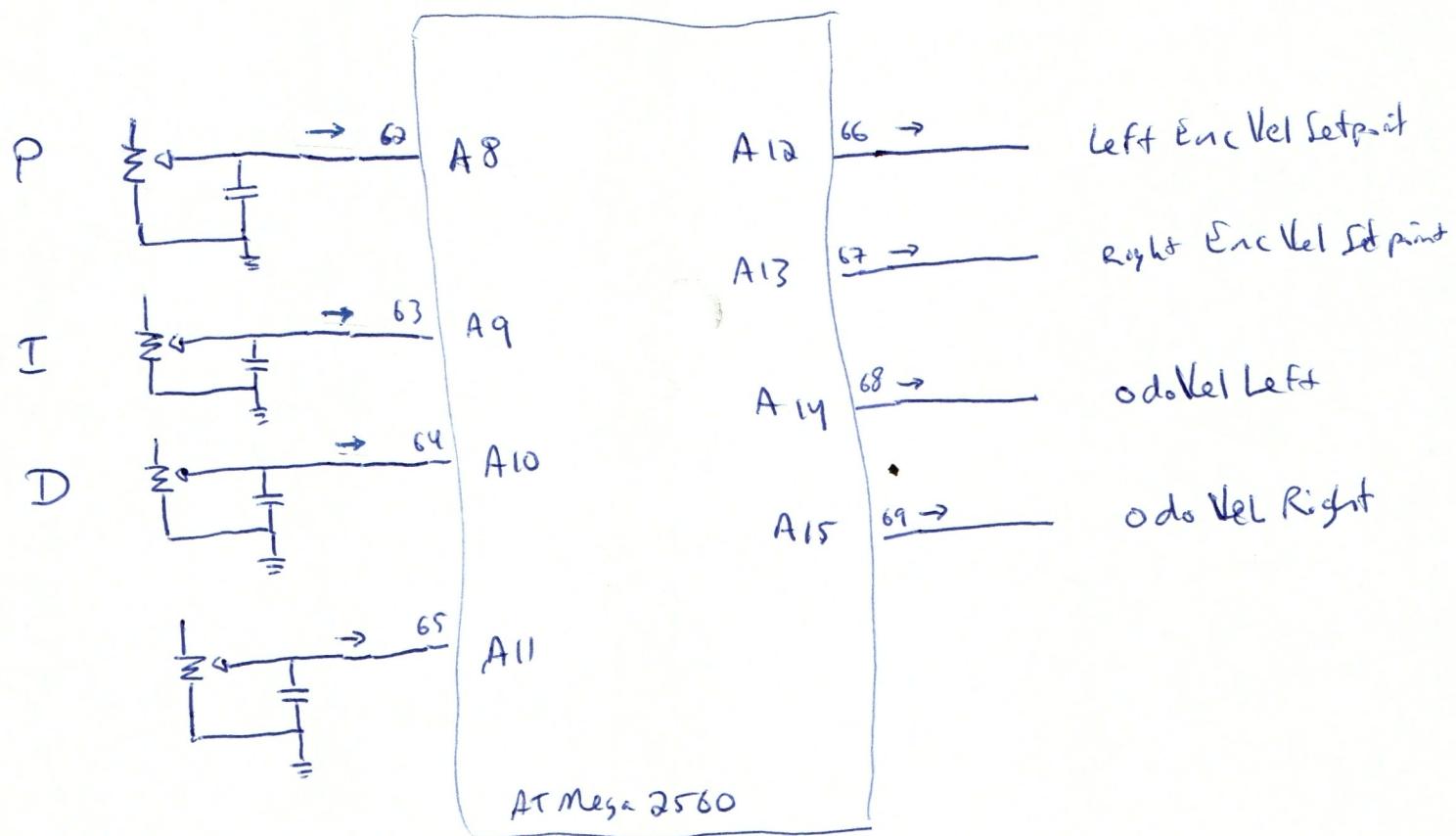
$$0 - 100 = -100$$

$$0.125 - 100 = -1$$

$$a = +0.792$$

$$+0.792 \cdot x - 100 = y$$

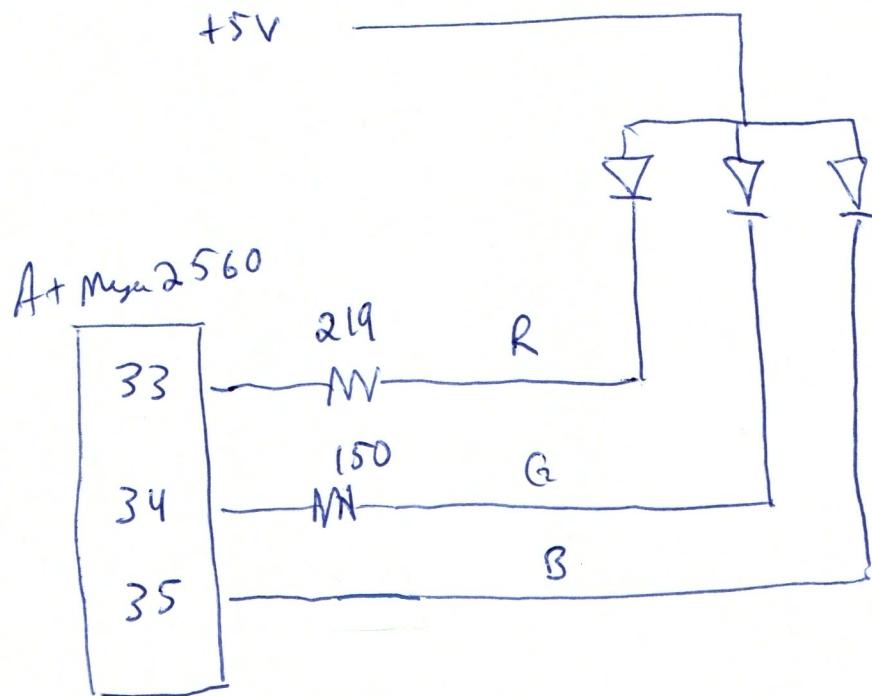
Analog Hot points
2019 June 30



Push Button
#1

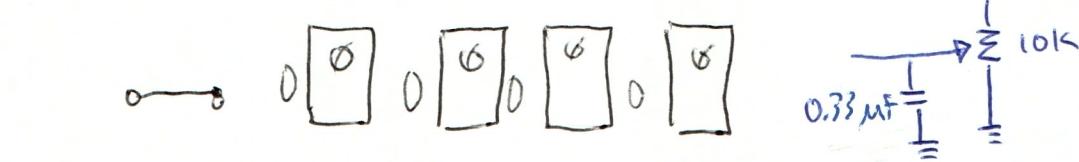
Lights

2019 Oct 13

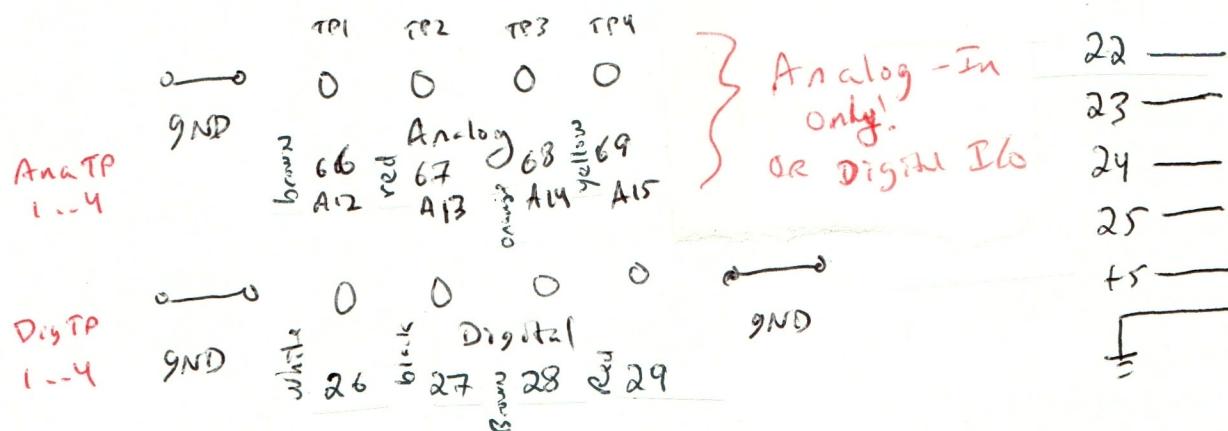


TP
Adapter
Board
2019 Oct 5

tuning Pots



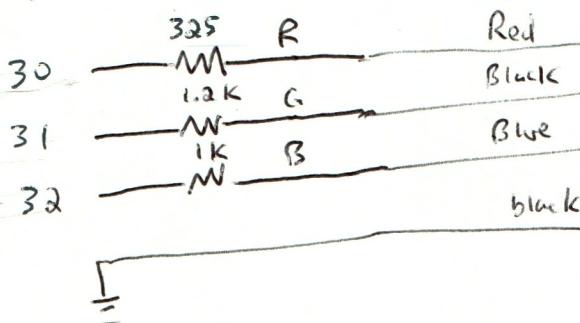
Pots 1-4
GND P I D Spare
62 3 63 2 64 2 65
A8 A9 A10 A11



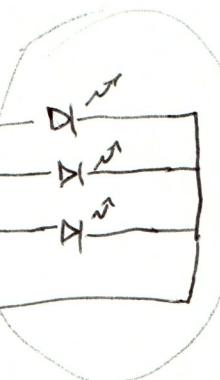
RGB LED

white
grey
purple

3-Color LED Status



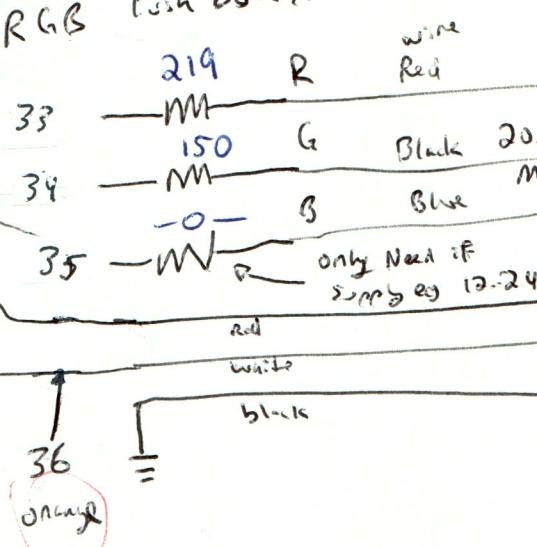
sparkfun
com-11120



RGB switch

wire
black
brown
red
wire
red
white
black
1MF

RGB Push button #1



Adafruit

<http://adafruit.com/3350>

3350
Rugged
Metal
Pushbutton

