Reset button outside the controller for resetting the Arduino.

R4 220Ω

LED1 Blue (525nm)

Part1

12V

3V3 VIN

Arduino Mega 2560 (Rev3)

RESET
AREF
IOREF
IOREF

D13 PWM
D12 PWM
D11 PWM
D10 PWM

PWMPump1
PWMPump0
ETH CS

PWM pins 5,6,7,8,9,46 are available in addition to pins 2 and 3 for a total of 8 PWM channels for controlling a full spectrum LED fixture.

Reset

U5
5V
Vcc
Data   DS18B20
Gnd

Temp

Part2

U4
SCL   SCL
SDA   SDA
        DS1307
5v   VCC
        GND

D8 PWM
D9 PWM
D7 PWM
D6 PWM
D5 PWM
D4 PWM
D3 PWM
D2 PWM

SD CS

12V

R7 10kΩ   R6 10kΩ

U2

Optional 0-10v PWM

LM 358
Vcc

PWM2

R9 10kΩ

R8 10kΩ

PWM1

GND

SCL
SDA   I2C LCD
5v   VCC
        GND

U3

A0
A1
A2
A3
A4
A5

A6
A7
A8
A9

D1 TX0
D0 RX0

D14/TX3
D15/RX3
D16 PWM/TX2
D17 PWM/RX2

5V   5V

U1
Vcc   IN0   outlet1 relay
RX   IN1   outlet2 relay
TX   Atlas pH IN2   outlet3 relay
pH   IN3   outlet4 relay
Gnd   IN4   outlet5 relay   8ch rly 5v
           IN5   outlet6 relay
           IN6   outlet7 relay
           IN7   outlet8 relay

U6
Vcc

Optional 16x2 LCD display. Using a 20x4 may draw too much current from the Arduino.

Feed in   A10
ato1   A11
ato2   A12
Sonar echo A13
           A14
           A15

J1

D18/TX1
D19/RX1
D20/SDA   SDA
D21/SCL   SCL

BN1 pH probe

JD-Vcc
GND

5V

Use a separate 5v supply and Gnd. Disconnect JD-Vcc to Vcc jumper. Install 130vac MOV across each outlet.

Arduino Ethernet Shield

5V
3V3 5V VIN

RESET   RX/D0
AREF   TX/D1
IOREF   D2
N/C   PWM D3
               SDCS   SD CS
A0   PWM D5
A1   PWM D6
A2   D7
A3   D8
A4/SDC   PWM D9
A5/SCL   ETH CS   Eth CS
               PWM D11
               SPI/D12
               SPI/D13

ICSP MISO   MISO
ICSP SCK   SCK
ICSP MOSI   MOSI

GND

Reset

RESET
S1

D22   outlet1 relay
D23   outlet2 relay
D24   outlet3 relay
D25   outlet4 relay
D26   outlet5 relay
D27   outlet6 relay
D28   outlet7 relay
D29   outlet8 relay

D38
D39
D40
D41
D42
D43
D44   PWMPump3
D45   PWMPump2
D46
D47   Sonar trigger
D48   OneWire temp
D49
D50   MISO
D51   MOSI
D52   SCK
D53   SS

GND

IC1 12V
ULN2803A

In 1   1   18 Out 1   DB9 pin5
In 2   2   17 Out 2   outlet16 relay DB9 pin4
In 3   3   16 Out 3   outlet15 relay DB9 pin1
In 4   4   15 Out 4   outlet14 relay DB9 pin2
In 5   5   14 Out 5   outlet13 relay DB9 pin3
In 6   6   13 Out 6   outlet12 relay DB9 pin9
In 7   7   12 Out 7   outlet11 relay DB9 pin8
In 8   8   11 Out 8   outlet10 relay DB9 pin7
0V   9   10 COM   outlet9 relay DB9 pin6

Optional additional 8 outlets

5V R5 3.3kΩ

12V D2 1N4001

Q3
R13 4.7kΩ
R12 47kΩ

PeristalticPump1

12V D3 1N4001

Q4 BC337
R11 4.7kΩ
R10 47kΩ

PeristalticPump0

feed out

5V

D1 1N914

Q2 BC328

R3 47kΩ

R2 4.7kΩ

Arduino circuit, PWM and the relays of the second Chauvet are powered by a 12v 1a power supply. Use 5v from Arduino to power the Atlas pH stamp and the rest of external circuit using 5v. Relay board powered by a separate 5v 1a power supply. You can add a power switch to the 110v line connected to the 110v inputs of the two power supplies.

Made with Fritzing.org