ATmega32U4 Microcontroller

3.3V

R1 RESET

R4

C2

C3

USB_5V

GND

R5

USB_D+
USB_D-

C4

Y1 R6

C5

8MHz Xtal

GND

RESET Switch

RESET
S1

GND

U2

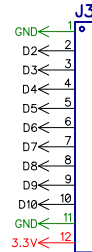|	
RESET 13	36 PF7/ADC7 → A0
VCC 14	37 PF6/ADC6 → A1
VCC 34	38 PF5/ADC5 → A2
AVCC 24	39 PF4/ADC4 → A3
AVCC 44	40 PF1/ADC1 → A4
AREF 42	41 PF0/ADC0 → A5
VBUS 7	
UVCC	20 PD2/RX → wifi_txd
UCAP 6	21 PD3/TX → wifi_rxd
	19 PD1/SDA → D2
USB_D+ 4	18 PD0/SCL → D3
USB_D- 3	25 PD4/ADC8 → D4
	31 PC6 → D5
XTAL1 17	27 PD7/ADC10 → D6
	1 PE6 → D7
XTAL2 16	28 PB4/ADC11 → D8
	29 PB5/ADC12 → D9
	30 PB6/ADC13 → D10
	12 PB7 → wifi_rst
PE2/HWB 33	26 PD6/ADC9 → wifi_pwr
	32 PC7 → LED
UGND 5	8 PB0/SS → RX_LED
GND 15	9 PB1/SCK → SCK
GND 23	10 PB2/MOSI → MOSI
GND 35	11 PB3/MISO → MISO
GND 43	22 PD5 → TX_LED

Analog Reference

GND

General Purpose I/O

ADC Inputs

J1

1 → GND
2 → A0
3 → A1
4 → A2
5 → A3
6 → A4
7 → A5
8 → GND

Digital I/O

J3

1 GND →
2 D2 ←
3 D3 ←
4 D4 ←
5 D5 ←
6 D6 ←
7 D7 ←
8 D8 ←
9 D9 ←
10 D10 ←
11 GND ←
12 3.3V ←
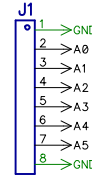
ESP8266 (ESP-01) WiFi Module

3.3V

Q1

U1
ESP8266
WiFi Module

wifi_rxd → RXD	VCC
GPIO0	RST → wifi_rst
GPIO2	CH_PD → R2
GND	TXD → wifi_txd

C1

R3

GND

wifi_pwr

Async Serial
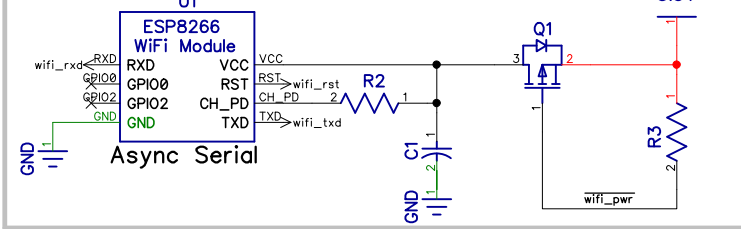
AVR In-Circuit Serial Programming Connector

3.3V

J2
AVRISP

MISO	1	→ MISO
VCC	2	
SCK	3	→ SCK
MOSI	4	→ MOSI
RESET	5	→ RESET
GND	6	

GND

LEDs

RX_LED ← R7 D1

TX_LED ← R8 D2

LED ← R9 D3

GND

Mini USB

J4.1

Mini USB

5V 1	
D- 2	→ USB_D-
D+ 3	→ USB_D+
NC 4	
Gnd 5	

F1 USB_5V

GND

J4.2

MH1
MH2
MH3
MH4
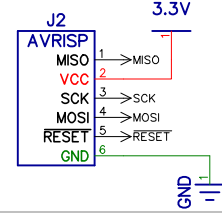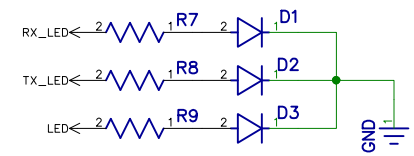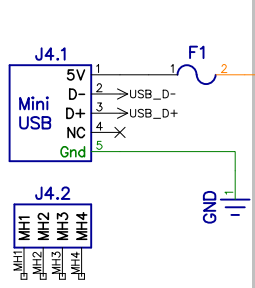
450mA Li-Ion Battery Charger

Batt+

U3
450mA Li-Ion Charger

USB_5V 4 Vdd	Vbat 3
5 PROG	
1 CE	Vss 2

B1
18650 Li-Ion

USB Power LED

R11 D4

GND

GND

GND
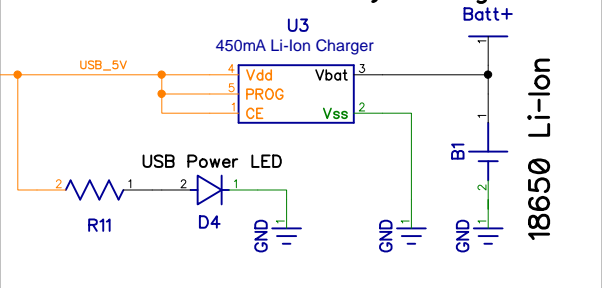
3.3V 1A Voltage Regulator and Power Switch

Batt+   S2   3.3V

Q2

R10

R12 USB_5V

D5

C6

U4

VIN 1	VOUT 3
GND(TAB) 2	GND(TAB) 4

C7

GND GND GND GND GND

Arduino Pro Micro Compatible
Tested with: Caterina-WIOT-20150104.hex
This schematic is released under
Creative Commons ShareAlike 4.0 International

More info at: http://WIOT.org

Wireless Internet of Things (WIOT)

Ubld Electronics, LLC

| | | R2 |
| 3/27/15 | Chris K Cockrum | Sheet 1 |

ubld.iT