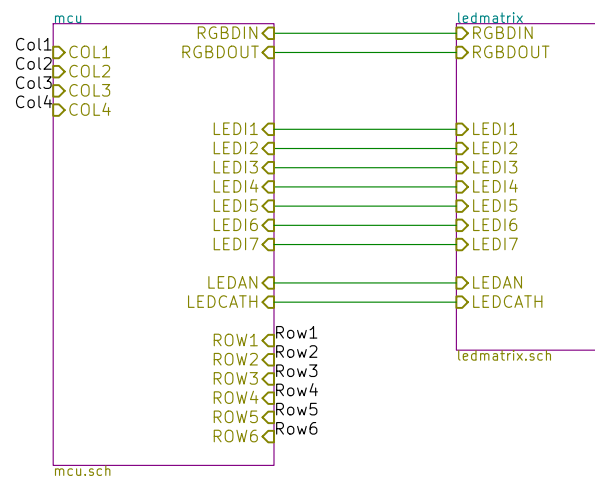
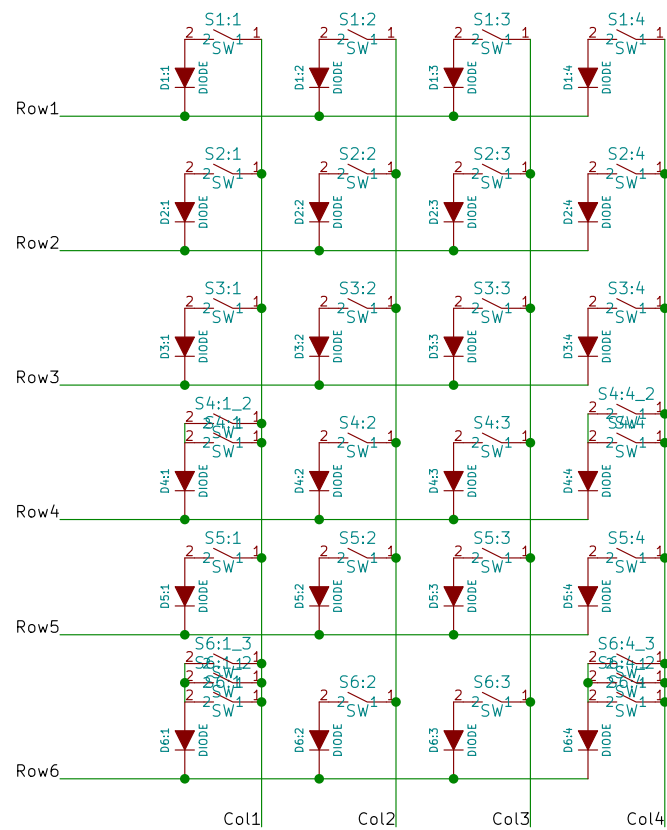


Switch Matrix

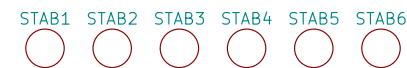


Break Holes



Mount Holes

Stabilizers



Fiducials (For claibration of pick and place machine)



LOGOs



Mohit MOZ Garg

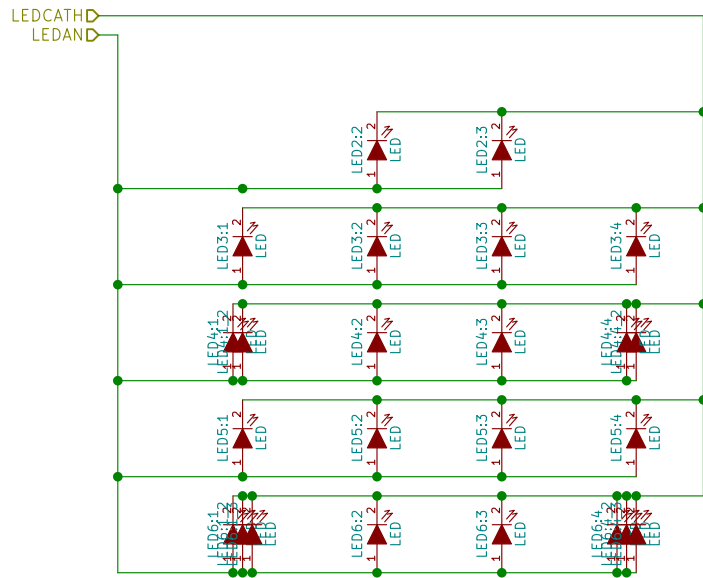
Sheet: /
File: SAMPad.sch

Title: SAMPad

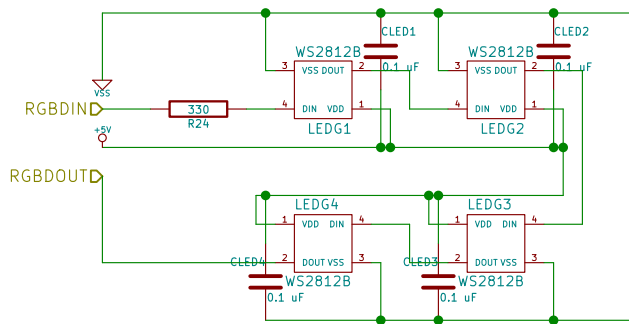
Size: A3 Date: 2016-04-26
KiCad E.D.A. kicad 4.0.1-stable

Rev: Rev 0.5
Id: 1/3

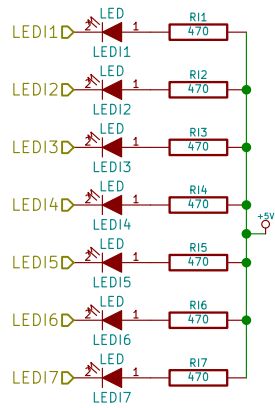
Left side backlight matrix



RGB LEDs



Indicator LEDs



Mohit MOZ Garg

Sheet: /ledmatrix/
File: ledmatrix.sch

Title: **SAMPad**

Size: A3 Date: 2016-04-26
KiCad E.D.A. kicad 4.0.1-stable

Rev: Rev 0.5
Id: 2/3

Microcontroller

The diagram shows an ATmega32U4 microcontroller (U1) with the following components and connections:

- Decoupling capacitors:** C3 (0.1uF), C7 (0.1uF), C5 (0.1uF), C4 (0.1uF), C6 (0.1uF), C2 (1uF).
- Resistors:** R9 (100k), R1 (1k).
- Jumpers:** JP1 (JUMPER).
- Microcontroller Pin Connections:**
 - VCC (14, 34, 15, 35) to +5V
 - GND (35) to GND
 - RESET (13) to +5V
 - XTAL1 (17) to XTAL2 (16) via C5
 - AREF (42) to GND
 - AVCC (24) to +5V
 - AGND (23) to GND
 - UVcc (2) to +5V
 - VBus (7) to +5V
 - D+ (4) to +5V
 - D- (3) to GND
 - UCap (6) to +5V
 - UGnd (5) to GND
 - PF7 (ADC7/TDI) (36) to COL4
 - PF6 (ADC6/TDO) (37) to COL3
 - PF5 (ADC5/TMS) (38) to COL2
 - PF4 (ADC4/TCK) (39) to COL1
 - PF1 (ADC1) (40) to ROW5
 - PF0 (ADC0) (41) to ROW4
 - PE6 (INT.6/AIN.0) (1) to ROW3
 - PE2 (ALE/HWB) (33) to HWBE
 - (T0) PD7 (27) to QLED14
 - (T1) PD6 (26) to QLED17
 - (XCK1) PD5 (22) to QLED16
 - (ICP1) PD4 (25) to QLED15
 - (TXD1/INT3) PD3 (21) to ENCA
 - (RXD1/INT2) PD2 (20) to ENCB
 - (OC2B/SDA/INT1) PD1 (19) to X
 - (OC0B/SCL/INT0) PD0 (18) to X
 - (PCINT7/OC.0A/OC.1C) PB7 (12) to RGBDIN
 - (PCINT6/OC.1B) PB6 (30) to QLED13
 - (PCINT5/OC.1A) PB5 (29) to LEDBL
 - (PCINT4/OC.2A) PB4 (28) to BUZZER
 - (PD0/PCINT3/MISO) PB3 (11) to MISO
 - (PDI/PCINT2/MOSI) PB2 (10) to MOSI
 - (PCINT1/SCLK) PB1 (9) to SCLK
 - (PCINT0/SS) PB0 (8) to QROW6
 - (IC.3/CLK0) PC7 (32) to QROW1
 - (OC.3A) PC6 (31) to QROW2

USB Circuit

The diagram illustrates a USB-to-I2C interface circuit. It features two USB connectors on the left, each with pins 1 through 5. The first connector's pins 1 and 2 are labeled 'SHO_GND' and 'SHO_VCC' respectively. The second connector's pins 1 and 2 are labeled 'SHO_GND' and 'SHO_VCC' respectively. The circuit includes a PTC FUSE (F1) connected to the USB power line. The IP4234CZ6 IC is configured with its I/O2A pin to GND, I/O1A pin to VCC, I/O2B pin to USB_D-, and I/O1B pin to USB_D+. The IC is powered by a +5V supply through a 10uF capacitor (C9) and a 1uF capacitor (C1). The output of the IC is connected to a +5V supply through a 10uF capacitor (C9) and a 1uF capacitor (C1). The output of the IC is also connected to a +5V supply through a 10uF capacitor (C9) and a 1uF capacitor (C1). The output of the IC is also connected to a +5V supply through a 10uF capacitor (C9) and a 1uF capacitor (C1).

ISP Tag Connect

The diagram illustrates the connection of an ISP Tag to a microcontroller. The tag's pins are connected as follows:

- P6 to MISO (Pin 1)
- MISO to Pin 1
- VCC to Pin 2
- SCK to Pin 3
- MOSI to Pin 4
- TRST to Pin 5 (MCLRST)
- GND to Pin 6
- ISP6 to Pin 6

The TRST pin is also connected to a 10k resistor and then to VCC.

Backlight constant current supply

MCU RESET

The diagram shows a reset circuit for an MCU. A 5V supply is connected to a 100k resistor (R14). The other end of R14 is connected to pin 2 of a switch (S1). Pin 1 of S1 is connected to +5V, and pin 3 is connected to VSS. Pin 4 of S1 is connected to a green wire labeled TAC_SWITCH. Pin 2 of S1 is also connected to a green wire labeled MCURST.

Crystal

The diagram shows a crystal oscillator circuit. A crystal component labeled X1 is connected between the XTAL2 and XTAL1 pins. Two capacitors, C13 and C14, both labeled 8pF, are connected from XTAL2 and XTAL1 respectively to a common ground labeled VSS.

Buzzer (Optional)

The diagram shows a circuit for an optional buzzer. A 100 ohm resistor is connected in series with the Buzzer (BZ1) and a 0.1uF capacitor. The capacitor is connected to ground (VSS). The Buzzer is represented by a red square symbol with a speaker icon.

Debug headers

The diagram shows two debug headers, P4 and P5, connected to various pins. P4 is connected to D-, D+, VUSB, RGBDOUT, RGBDIN, and LEDBL. P5 is connected to +5V, SCLK, MOSI, MISO, and MCURST. A green arrow points from the SCLK pin to a ground symbol labeled GND.

Header	Pin	Signal
P4	1	D-
	2	D+
	3	VUSB
	4	RGBDOUT
	5	RGBDIN
	6	LEDBL
P5	1	+5V
	2	(unlabeled)
	3	SCLK
	4	MOSI
	5	MISO
P5	6	MCURST

Rotary Encoder (Optional)

Size: A3	Date: 2016-04-26	Rev: Rev 0.5
KiCad E.D.A. kicad 4.0.1-stable		Id: 3/3