28PINS
Variant: 5V / 3V3

2023-04-09
V1I1

RELEASED 09-APRIL-2023

DESIGN NOTE:
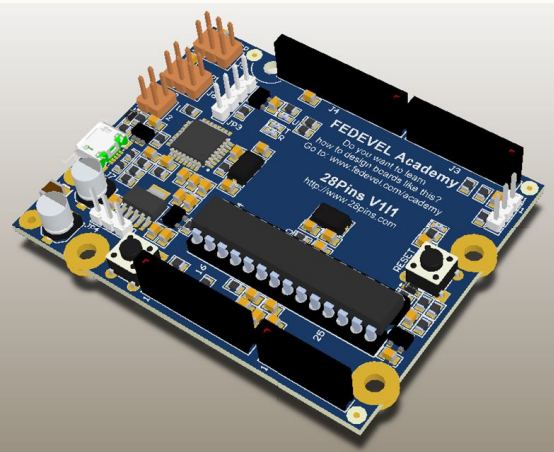Example text for debug notes.

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational
design notes.

DESIGN NOTE:
Example text for critical
design notes.

DESIGN NOTE:
Example text for cautionary
design notes.

LAYOUT NOTE:
Example text for critical
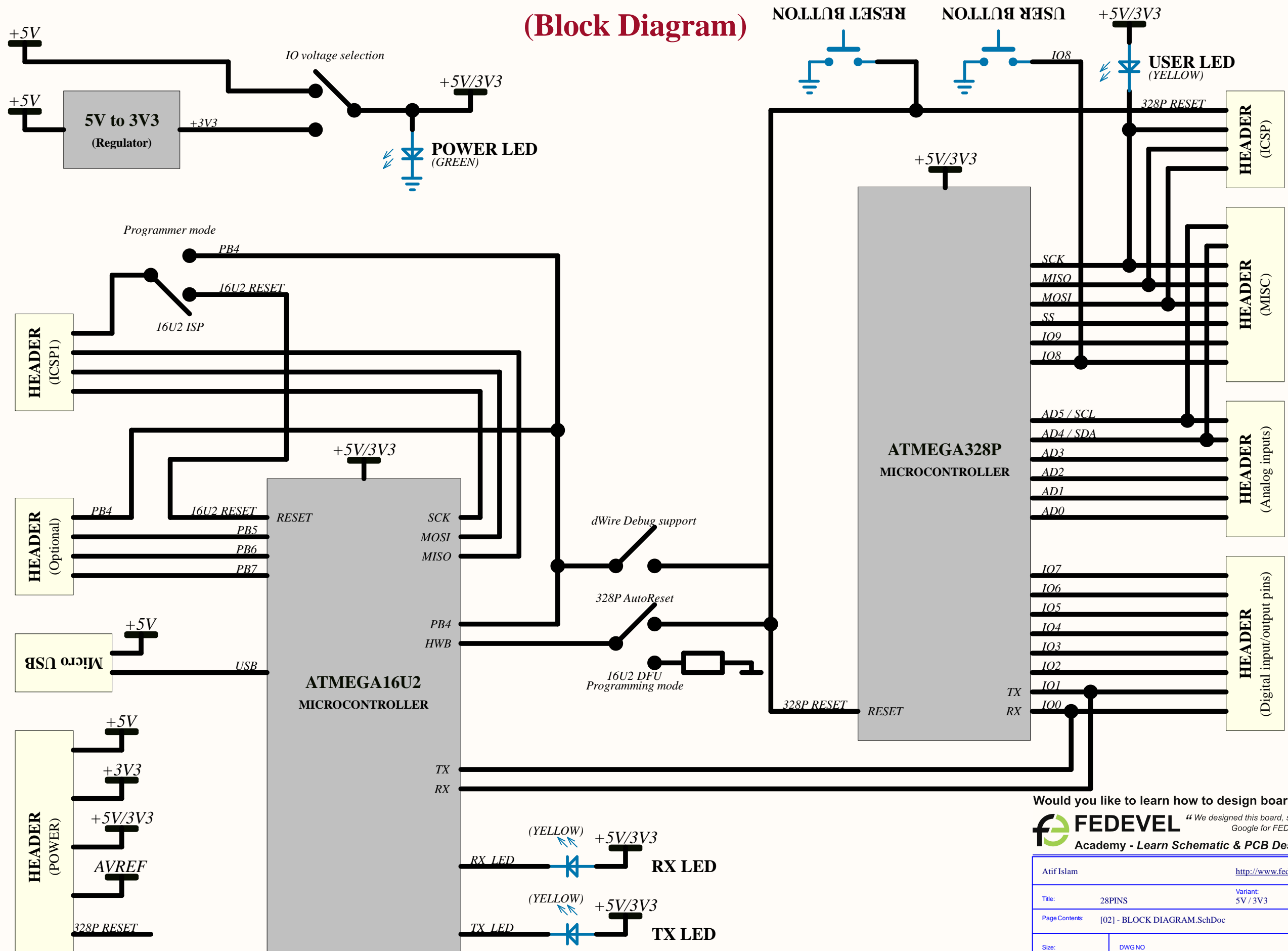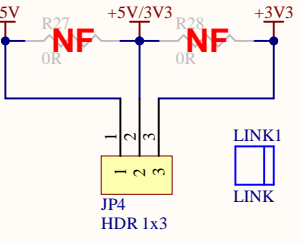**layout guidelines.**

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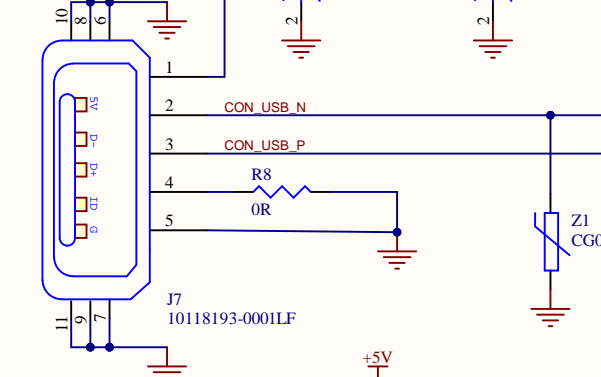**Academy - *Learn Schematic & PCB Design ONLINE***

Atif Islam — http://www.fedevel.com/academy

Title: 28PINS — Variant: 5V / 3V3

Page Contents: [01] - COVER PAGE.SchDoc — Checked by

Size: — DWG NO — Revision: V1I1

28PINS
(Block Diagram)

RESET BUTTON

USER BUTTON

+5V/3V3

USER LED
(YELLOW)

IO8

328P RESET

HEADER
(ICSP)

+5V

+5V

IO voltage selection

+5V/3V3

5V to 3V3
(Regulator)

+3V3

POWER LED
(GREEN)

+5V/3V3

ATMEGA328P
MICROCONTROLLER

SCK
MISO
MOSI
SS
IO9
IO8

HEADER
(MISC)

Programmer mode

PB4

16U2 RESET

16U2 ISP

HEADER
(ICSP1)

AD5 / SCL
AD4 / SDA
AD3
AD2
AD1
AD0

HEADER
(Analog inputs)

+5V/3V3

HEADER
(Optional)

PB4
PB5
PB6
PB7

16U2 RESET

RESET

SCK
MOSI
MISO

dWire Debug support

+5V

Micro USB

USB

PB4
HWB

ATMEGA16U2
MICROCONTROLLER

328P AutoReset

16U2 DFU
Programming mode

328P RESET

RESET

IO7
IO6
IO5
IO4
IO3
IO2
IO1
IO0

TX
RX

HEADER
(Digital input/output pins)

+5V

+3V3

+5V/3V3

HEADER
(POWER)

AVREF

328P RESET

TX
RX

(YELLOW)
+5V/3V3
RX_LED
RX LED

(YELLOW)
+5V/3V3
TX_LED
TX LED

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28PIN PROJECT

Power Selection

NF   NF

+5V   +5V/3V3   +3V3

JP4
HDR 1x3

LINK1
LINK

Micro USB

POWER

POWER PADS

3V3 LDO

U3
TL1963A-33DCQT

16U2
ATMEGA16U2-AU
U2

328P
ATMEGA328P-PN
U1

JP2
NF
HDR 2x2

JP3
HDR 1x4

JP1
HDR 1x3

ICSP 1
J6
HDR 2x3

ICSP
J5
HDR 2x3

DIP SOCKET

SCKT FOR U1

28-DIP SOCKET

28-DIP Socket

IOH
J4
HDR FEMALE 1x10 2.54mm

IOL
J3
HDR FEMALE 1x8 2.54mm

AD
J2
HDR FEMALE 1x6 2.54mm

MOUNTING HOLES

MH1   MH2   MH3   MH4

FIDUCIALS

FID1   FID2   FID3   FID4

POWER LED

D1
GREEN

USER LED

U4
SN74AHC1G09DBVR
AND

USER BUTTON

SW2
1825910-6

U7
SN74AHC1G09DBVR
AND

RESET (16U2)

U5
SN74AHC1G09DBVR
AND

RESET (328P)

SW1
1825910-6

U6
SN74AHC1G09DBVR
AND

REVISION HISTORY

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Title:		Variant:
	28PINS	5V / 3V3

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		V III

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Designator
[01] - COVER PAGE.SchDoc

Designator
[02] - BLOCK DIAGRAM.SchDoc

Designator
[03] - 28PINS SCHEMATIC.SchDoc

Designator
[04] - REVISION HISTORY.SchDoc

NOTES

Mark Not Fitted Components as
NF

DRAFT - Very early stage of schematic, ignore details.

PRELIMINARY - Close to final schematic.

CHECKED - There should not be any mistakes. Tell the engineer if you find one.

RELEASED - A board with this schematic has been sent to production.

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