Power In

File: PowerIn.kicad_sch

Master

File: Master Sch.kicad_sch

E String Slave

File: Eslave Sch.kicad_sch

D String Slave

File: Dslave Sch.kicad_sch

String Strike Slave

File: SSSlave sch.kicad_sch

A String Slave

File: Aslave Sch.kicad_sch

G String Slave

File: Gslave Sch.kicad_sch

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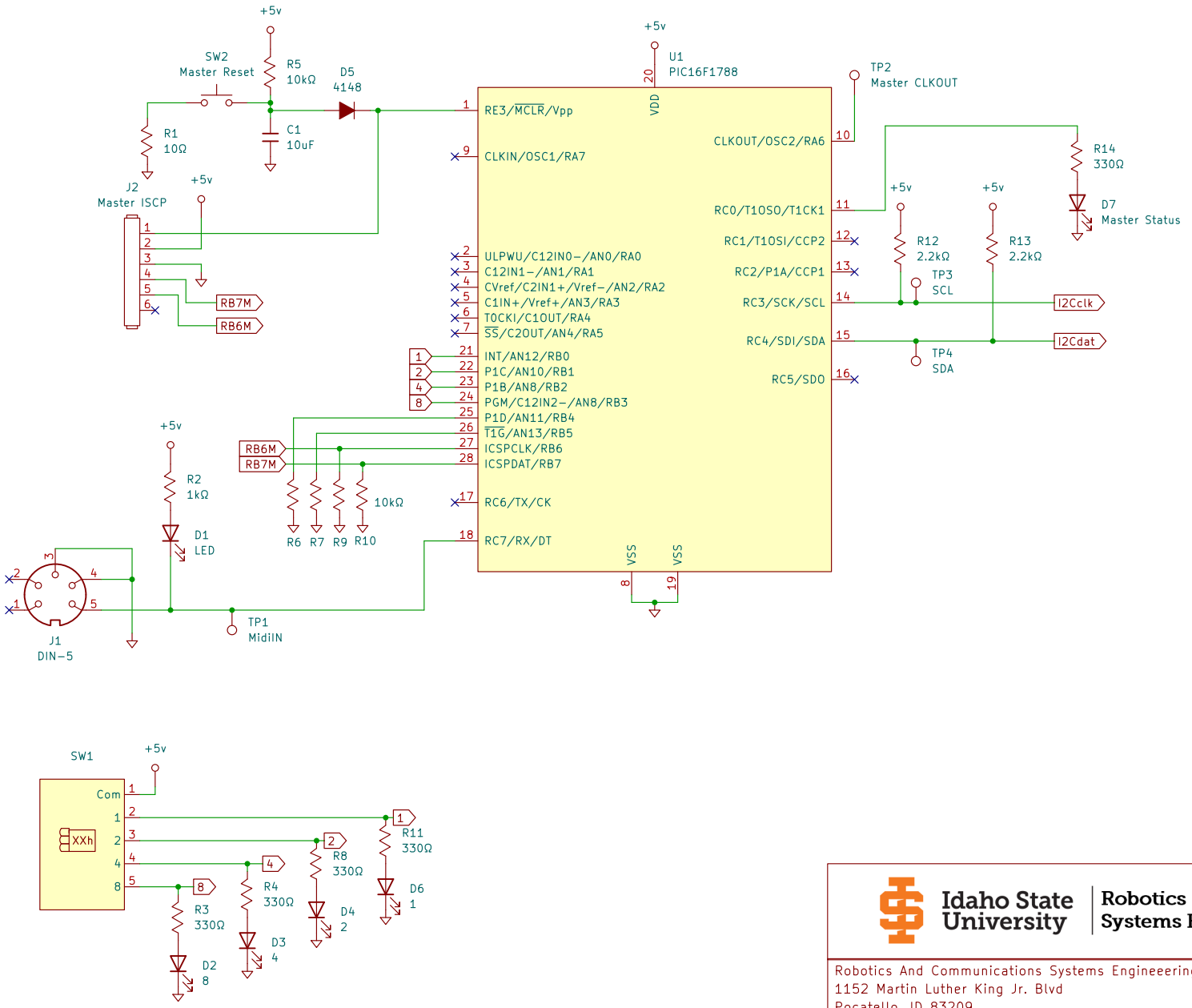
Sheet: /
File: Midi Bass Sch.kicad_sch

Title: MIDI Bass Guitar Schmatic

Size: A	Date: 2024-12-10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 1/13



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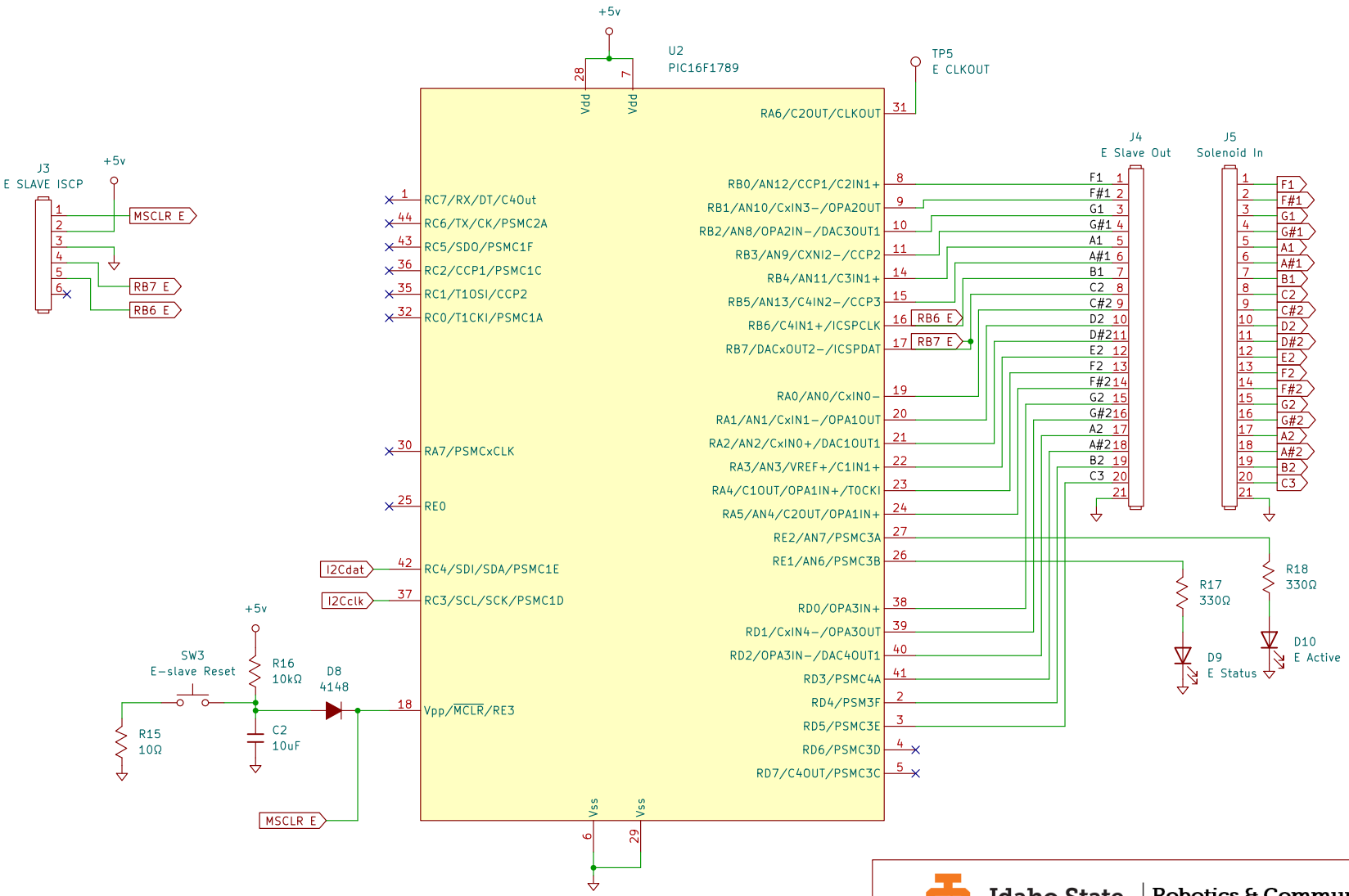
Sheet: /Master/
File: Master Sch.kicad_sch

Title: Master Schematic

Size: A	Date: 2024-12-10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 2/13



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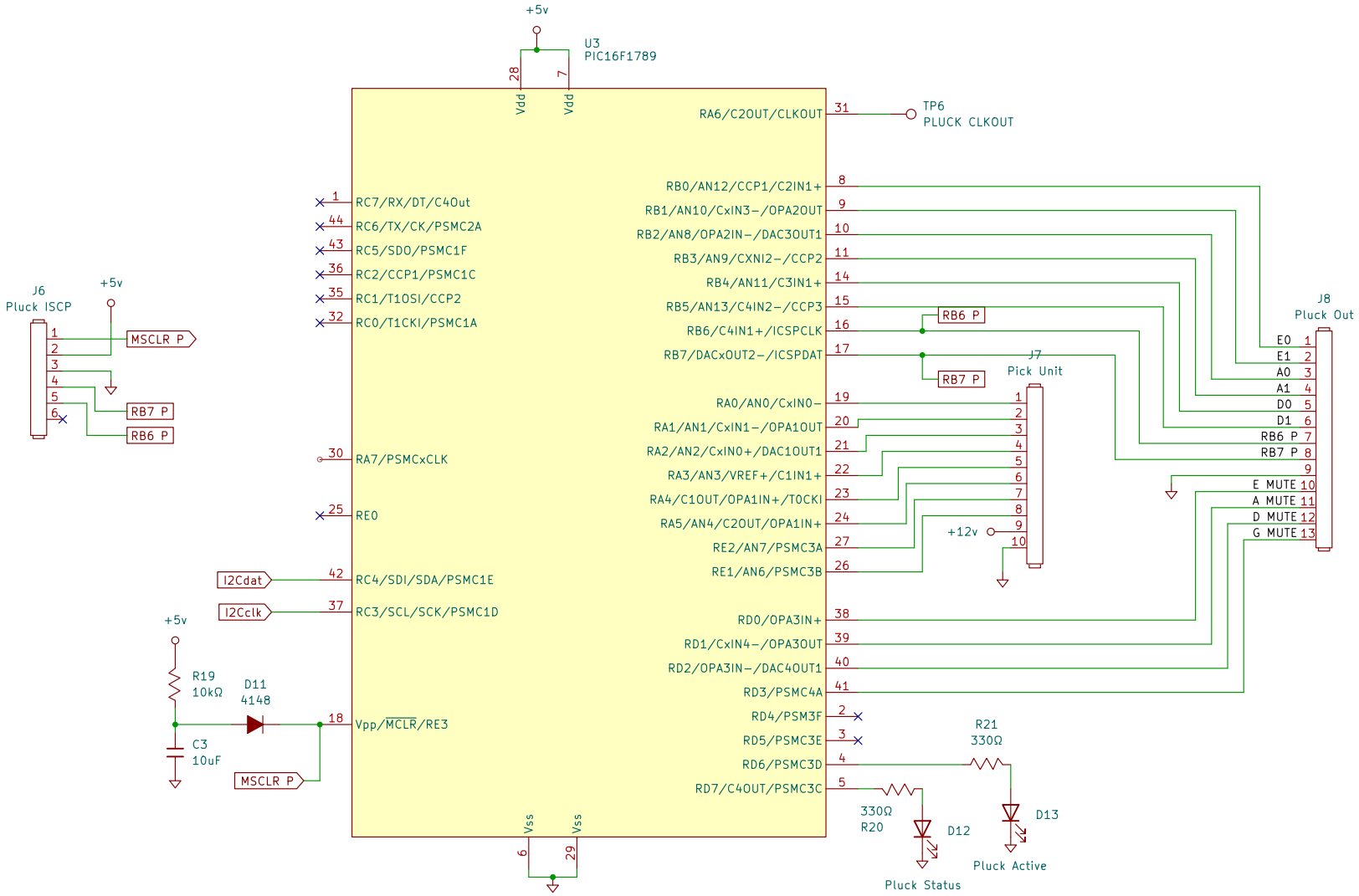
Sheet: /E String Slave/
File: Eslave Sch.kicad_sch

Title: E−Slave Processor Schematic

Size: A	Date: 2024−12−10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 3/13



Plucking Pack

File: PluckingPack.kicad_sch

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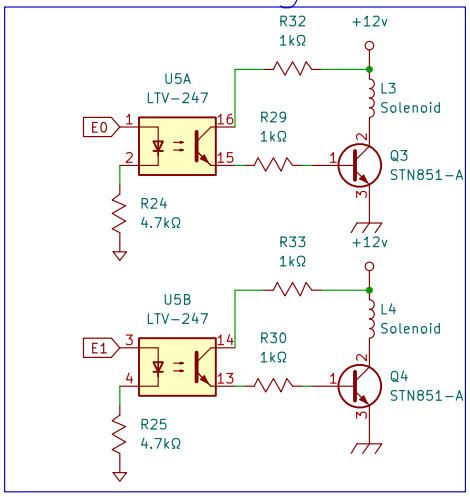
Sheet: /String Strike Slave/
File: SSSlave sch.kicad_sch

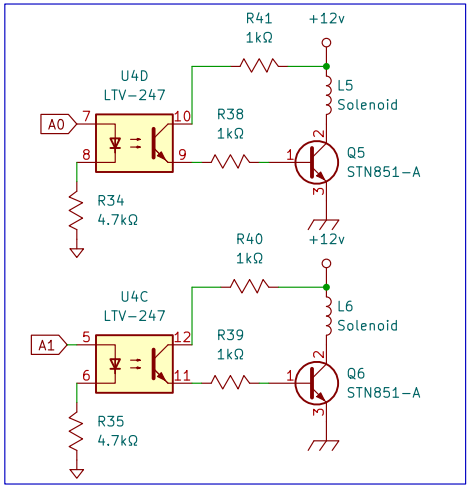
Title: Plucking Processor Schematic

Size: A	Date: 2024-12-10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 4/13

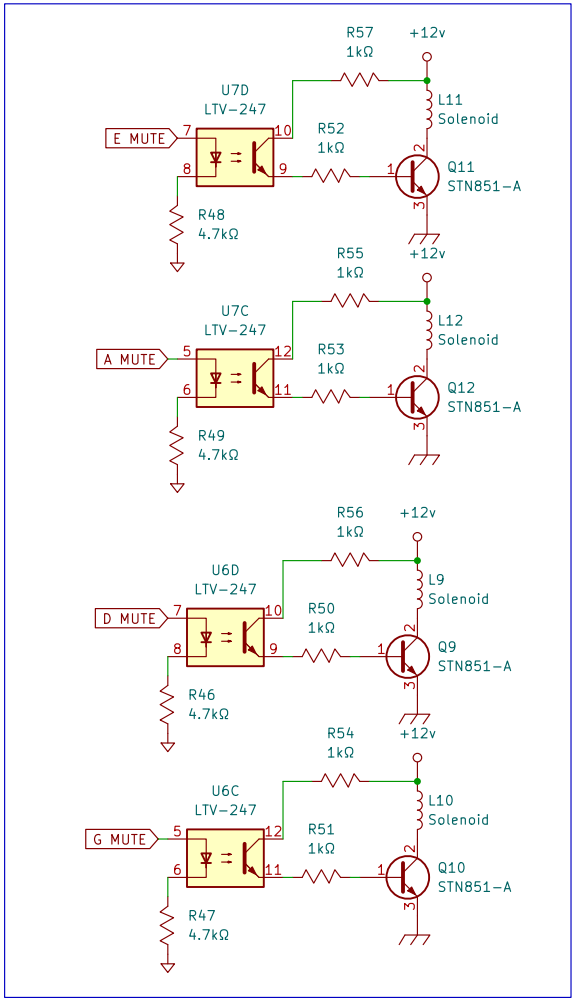
E Plucking Unit



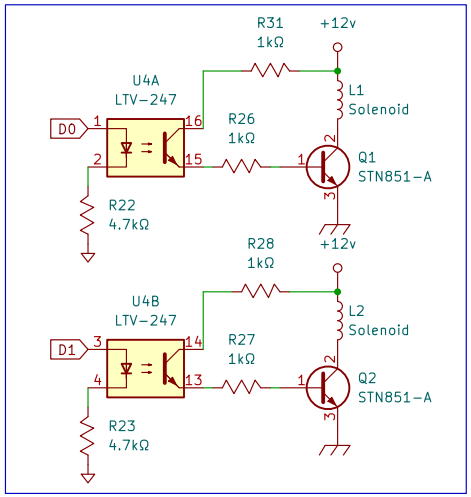
A Plucking Unit



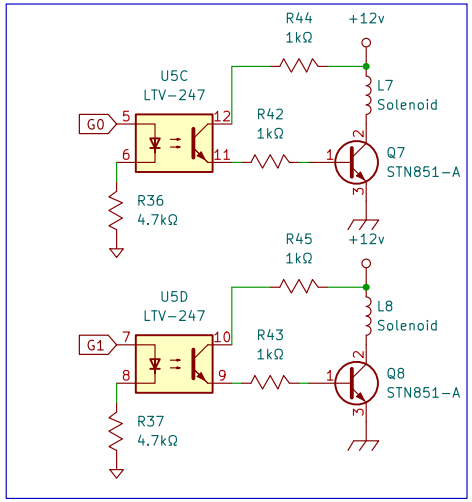
Muting Unit

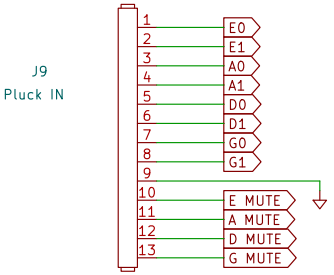


D Plucking Unit



G Plucking Unit





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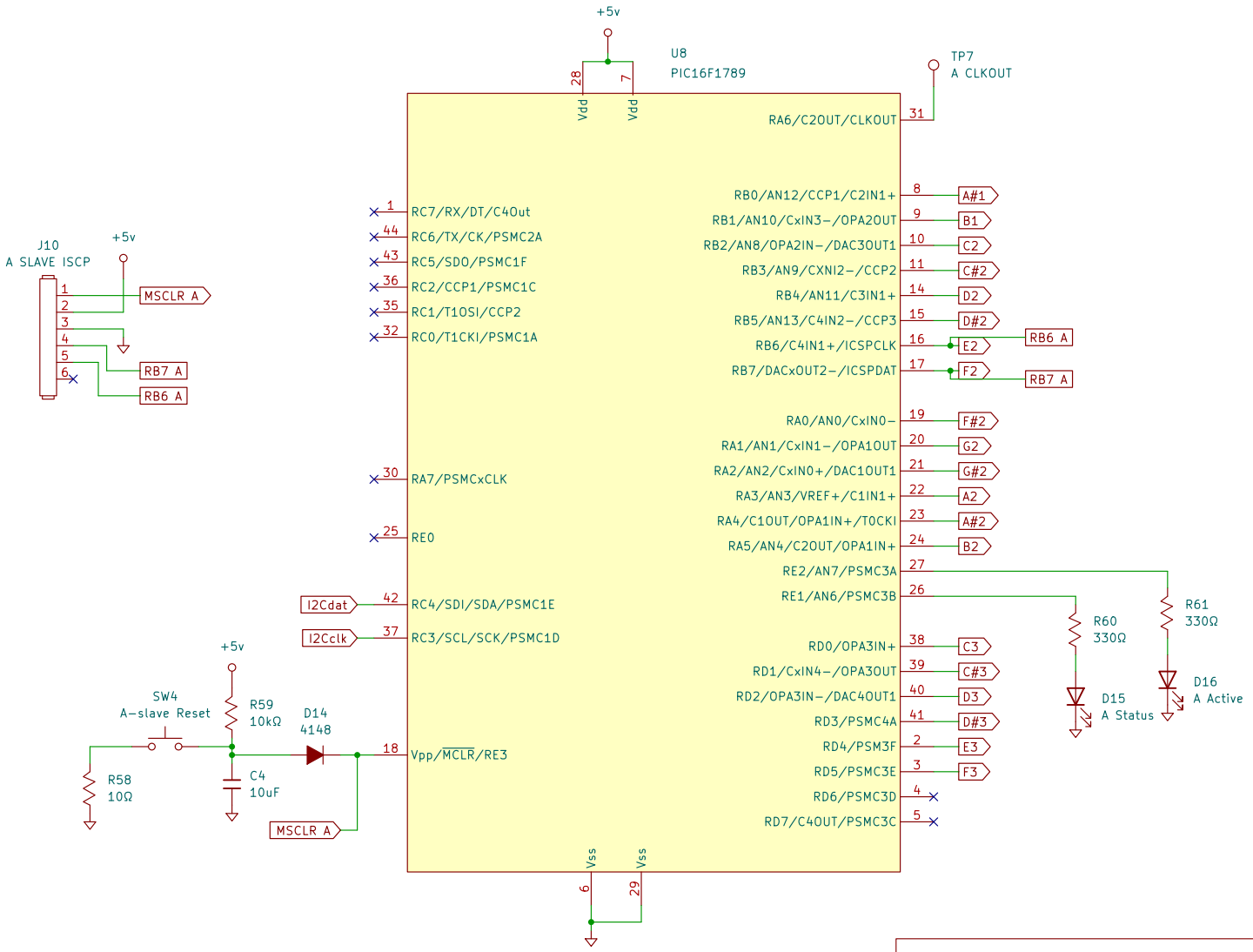
Sheet: /String Strike Slave/Plucking Pack/
File: PluckingPack.kicad_sch

Title: Plucking Unit Solenoid Array

Size: A	Date: 2024-12-10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 5/13



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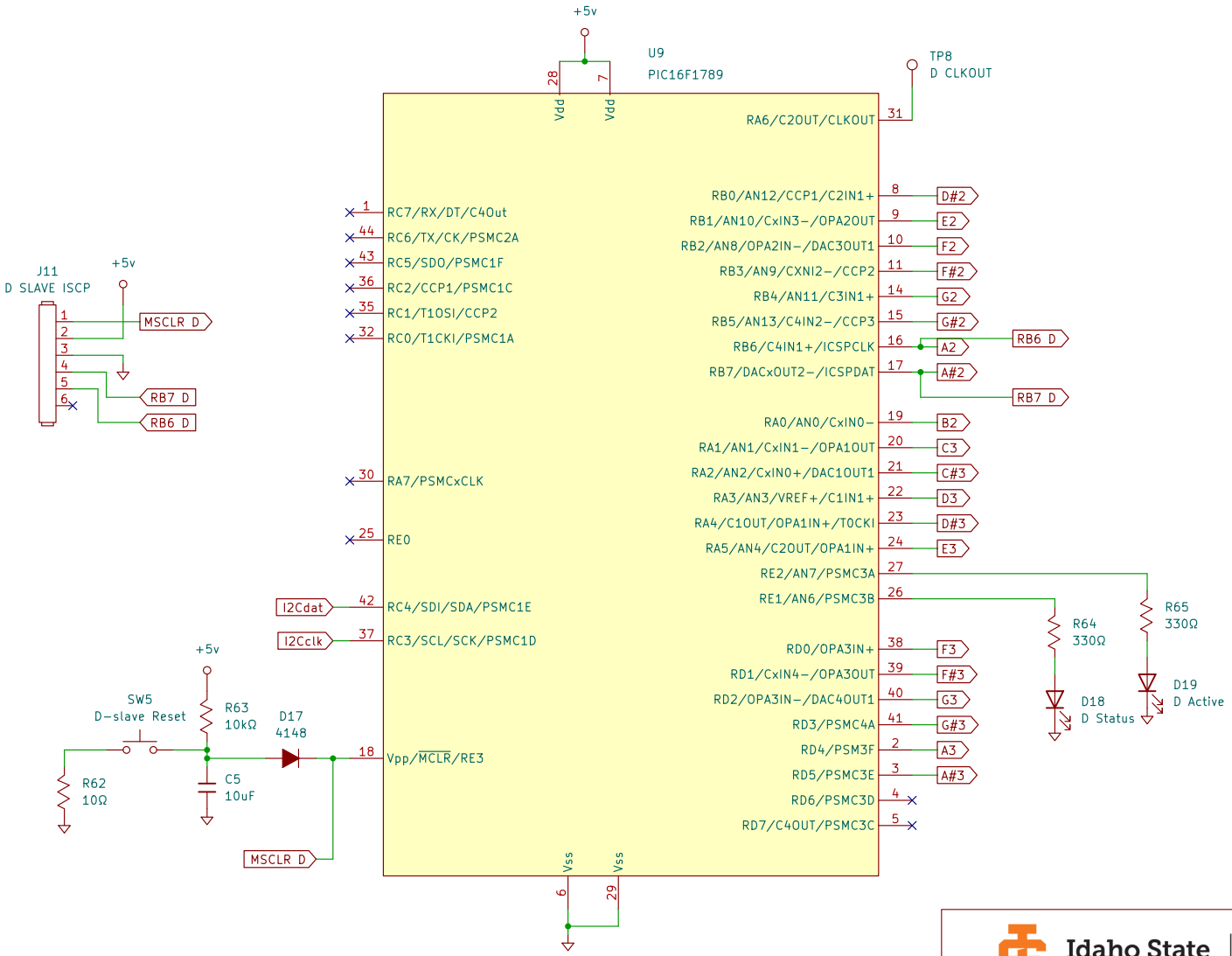
Sheet: /A String Slave/
File: Aslave Sch.kicad_sch

Title: A-Slave Processor Schematic

Size: A	Date: 2024-12-10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 6/13


+5v
U9
PIC16F1789
28
7
Vdd
Vdd
TP8
D CLKOUT
RA6/C2OUT/CLKOUT
31
RB0/AN12/CCP1/C2IN1+
RB1/AN10/CxIN3−/OPA2OUT
RB2/AN8/OPA2IN−/DAC3OUT1
RB3/AN9/CXNI2−/CCP2
RB4/AN11/C3IN1+
RB5/AN13/C4IN2−/CCP3
RB6/C4IN1+/ICSPCLK
RB7/DACxOUT2−/ICSPDAT
8
9
10
11
14
15
16
17
D#2
E2
F2
F#2
G2
G#2
A2
A#2
RB6 D
RB7 D
RA0/AN0/CxIN0−
RA1/AN1/CxIN1−/OPA1OUT
RA2/AN2/CxIN0+/DAC1OUT1
RA3/AN3/VREF+/C1IN1+
RA4/C1OUT/OPA1IN+/T0CKI
RA5/AN4/C2OUT/OPA1IN+
19
20
21
22
23
24
B2
C3
C#3
D3
D#3
E3
RE2/AN7/PSMC3A
RE1/AN6/PSMC3B
27
26
R64
330Ω
R65
330Ω
D18
D Status
D19
D Active
RD0/OPA3IN+
RD1/CxIN4−/OPA3OUT
RD2/OPA3IN−/DAC4OUT1
RD3/PSMC4A
RD4/PSM3F
RD5/PSMC3E
RD6/PSMC3D
RD7/C4OUT/PSMC3C
38
39
40
41
2
3
4
5
F3
F#3
G3
G#3
A3
A#3
1
RC7/RX/DT/C4Out
44
RC6/TX/CK/PSMC2A
43
RC5/SDO/PSMC1F
36
RC2/CCP1/PSMC1C
35
RC1/T1OSI/CCP2
32
RC0/T1CKI/PSMC1A
30
RA7/PSMCxCLK
25
RE0
I2Cdat
42
RC4/SDI/SDA/PSMC1E
I2Cclk
37
RC3/SCL/SCK/PSMC1D
18
Vpp/MCLR/RE3
MSCLR D
Vss
Vss
6
29
J11
D SLAVE ISCP
+5v
1
2
3
4
5
6
MSCLR D
RB7 D
RB6 D
+5v
SW5
D−slave Reset
R63
10kΩ
D17
4148
R62
10Ω
C5
10uF
D Solenoid Array
File: DSolenoidA.kicad_sch
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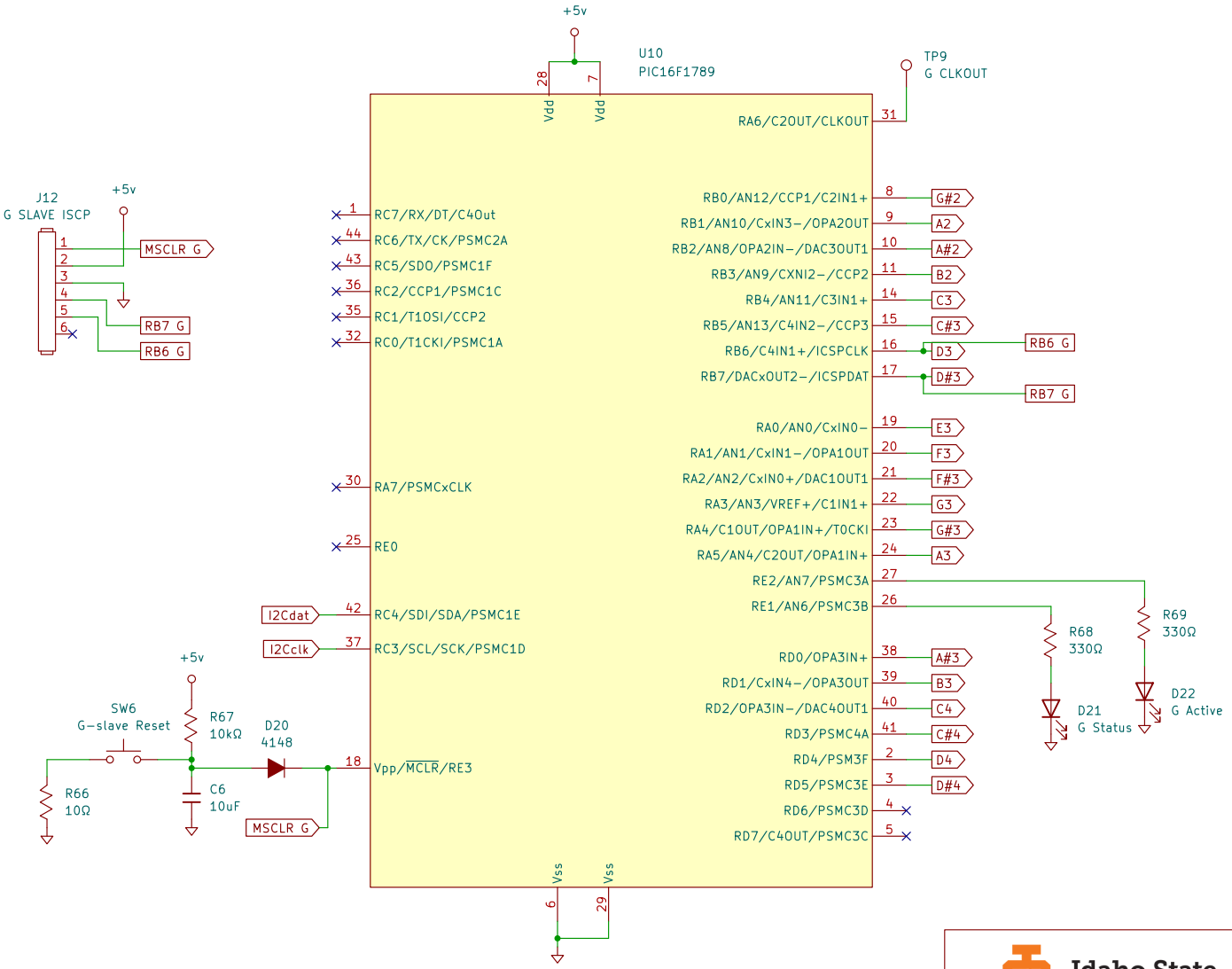
Idaho State University
Sheet: /D String Slave/
File: Dslave Sch.kicad_sch
Title: D−Slave Processor Schematic
Size: A
Date: 2024−12−10
Rev: A
KiCad E.D.A. 8.0.6
Id: 7/13



G Solenoid Array

File: GSolenoidA.kicad_sch

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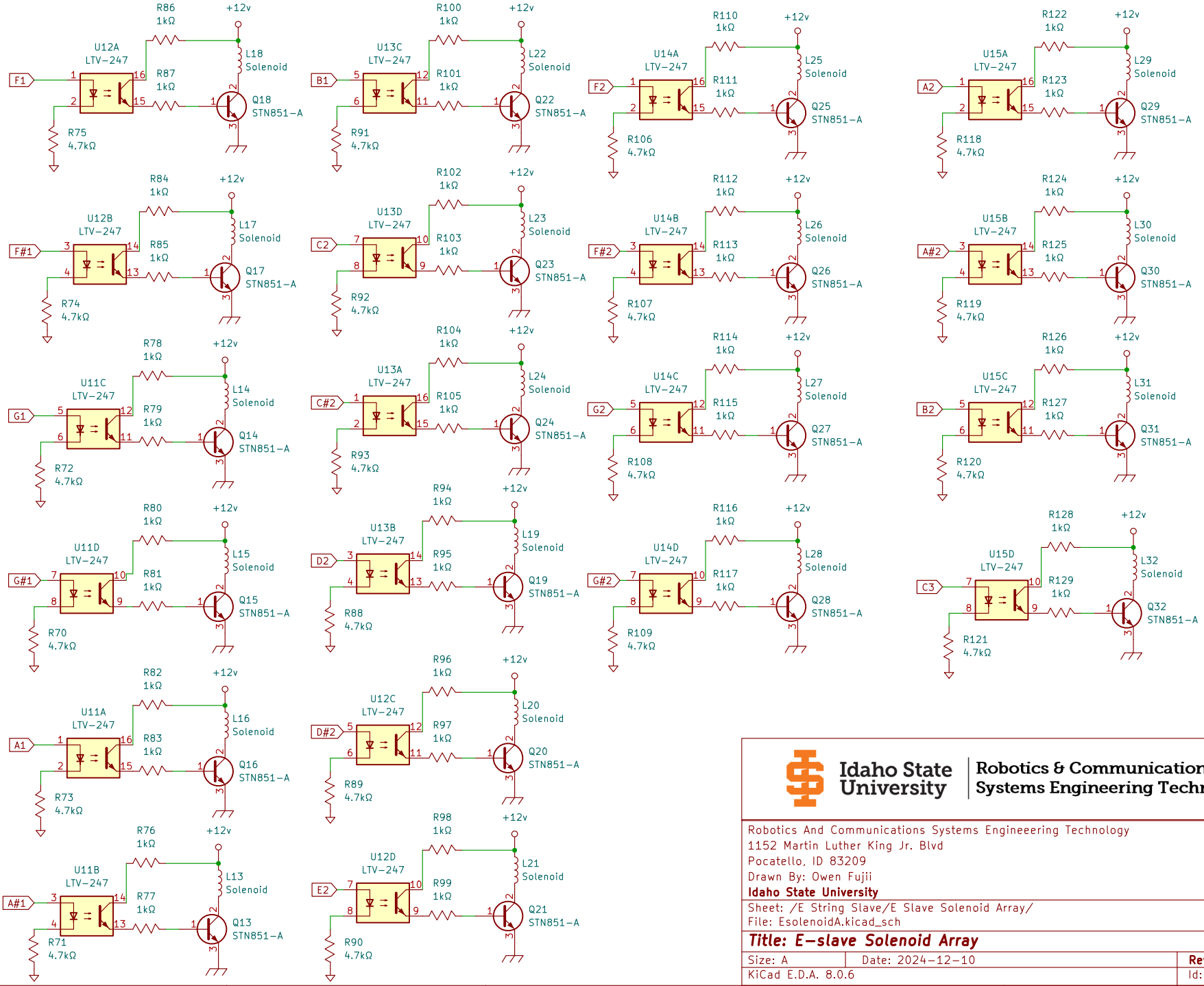
Sheet: /G String Slave/
File: Gslave Sch.kicad_sch

Title: G−Slave Processor Schematic

Size: A	Date: 2024−12−10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 8/13


U12A
LTV-247
R86
1kΩ
+12v
L18
Solenoid
F1
R87
1kΩ
Q18
STN851-A
R75
4.7kΩ
U12B
LTV-247
R84
1kΩ
+12v
L17
Solenoid
F#1
R85
1kΩ
Q17
STN851-A
R74
4.7kΩ
U11C
LTV-247
R78
1kΩ
+12v
L14
Solenoid
G1
R79
1kΩ
Q14
STN851-A
R72
4.7kΩ
U11D
LTV-247
R80
1kΩ
+12v
L15
Solenoid
G#1
R81
1kΩ
Q15
STN851-A
R70
4.7kΩ
U11A
LTV-247
R82
1kΩ
+12v
L16
Solenoid
A1
R83
1kΩ
Q16
STN851-A
R73
4.7kΩ
U11B
LTV-247
R76
1kΩ
+12v
L13
Solenoid
A#1
R77
1kΩ
Q13
STN851-A
R71
4.7kΩ
U13C
LTV-247
R100
1kΩ
+12v
L22
Solenoid
B1
R101
1kΩ
Q22
STN851-A
R91
4.7kΩ
U13D
LTV-247
R102
1kΩ
+12v
L23
Solenoid
C2
R103
1kΩ
Q23
STN851-A
R92
4.7kΩ
U13A
LTV-247
R104
1kΩ
+12v
L24
Solenoid
C#2
R105
1kΩ
Q24
STN851-A
R93
4.7kΩ
U13B
LTV-247
R94
1kΩ
+12v
L19
Solenoid
D2
R95
1kΩ
Q19
STN851-A
R88
4.7kΩ
U12C
LTV-247
R96
1kΩ
+12v
L20
Solenoid
D#2
R97
1kΩ
Q20
STN851-A
R89
4.7kΩ
U12D
LTV-247
R98
1kΩ
+12v
L21
Solenoid
E2
R99
1kΩ
Q21
STN851-A
R90
4.7kΩ
U14A
LTV-247
R110
1kΩ
+12v
L25
Solenoid
F2
R111
1kΩ
Q25
STN851-A
R106
4.7kΩ
U14B
LTV-247
R112
1kΩ
+12v
L26
Solenoid
F#2
R113
1kΩ
Q26
STN851-A
R107
4.7kΩ
U14C
LTV-247
R114
1kΩ
+12v
L27
Solenoid
G2
R115
1kΩ
Q27
STN851-A
R108
4.7kΩ
U14D
LTV-247
R116
1kΩ
+12v
L28
Solenoid
G#2
R117
1kΩ
Q28
STN851-A
R109
4.7kΩ
U15A
LTV-247
R122
1kΩ
+12v
L29
Solenoid
A2
R123
1kΩ
Q29
STN851-A
R118
4.7kΩ
U15B
LTV-247
R124
1kΩ
+12v
L30
Solenoid
A#2
R125
1kΩ
Q30
STN851-A
R119
4.7kΩ
U15C
LTV-247
R126
1kΩ
+12v
L31
Solenoid
B2
R127
1kΩ
Q31
STN851-A
R120
4.7kΩ
U15D
LTV-247
R128
1kΩ
+12v
L32
Solenoid
C3
R129
1kΩ
Q32
STN851-A
R121
4.7kΩ
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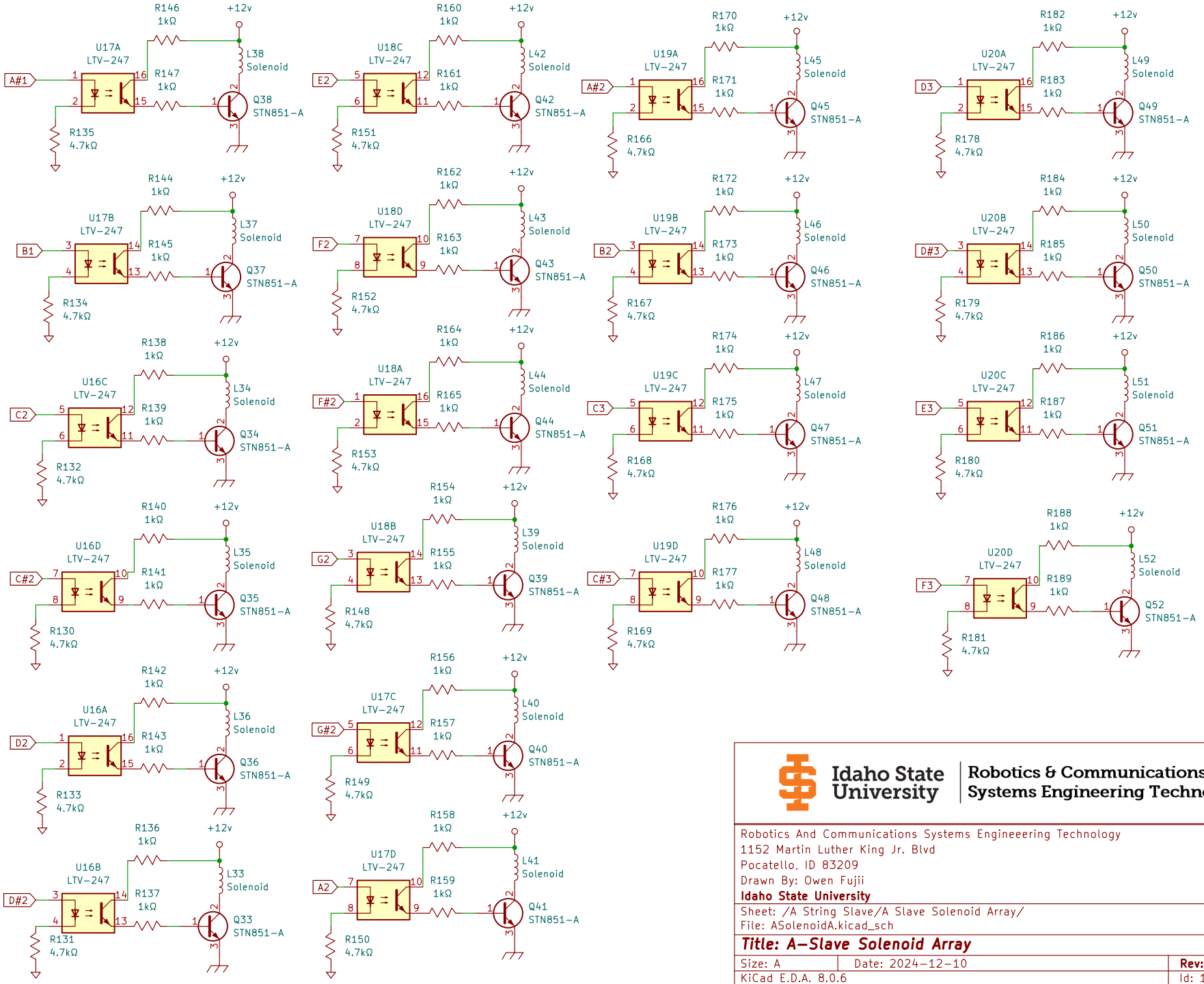
Sheet: /E String Slave/E Slave Solenoid Array/
File: EsolenoidA.kicad_sch
Title: E-slave Solenoid Array
Size: A
Date: 2024-12-10
Rev: A
KiCad E.D.A. 8.0.6
Id: 9/13



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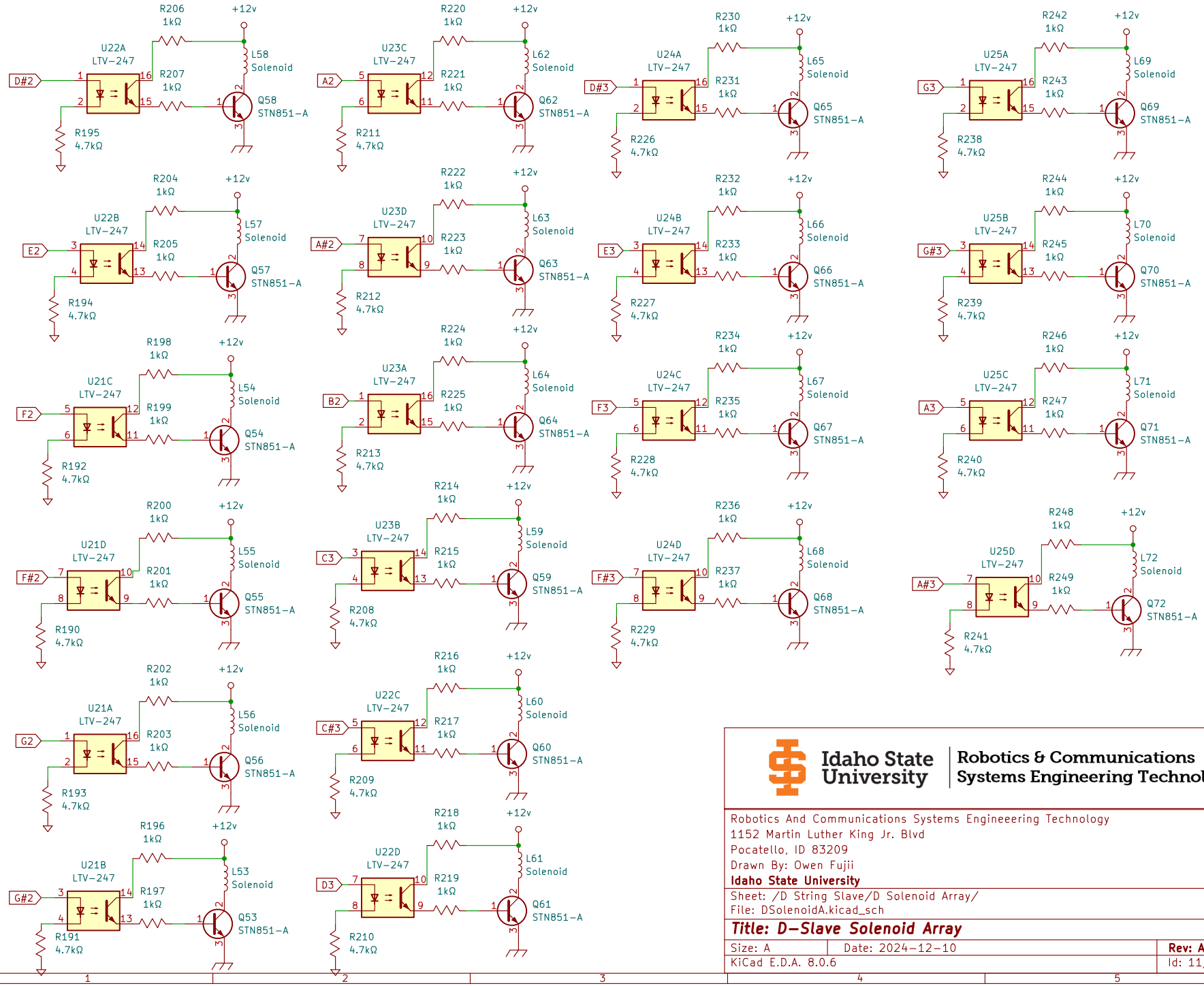
Sheet: /A String Slave/A Slave Solenoid Array/
File: ASolenoidA.kicad_sch

Title: A-Slave Solenoid Array

Size: A	Date: 2024-12-10	**Rev: A**
KiCad E.D.A. 8.0.6		Id: 10/13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+12v
U22A LTV-247
D#2
R207 1kΩ
L58 Solenoid
Q58 STN851-A
R195 4.7kΩ
R204 1kΩ
U22B LTV-247
E2
R205 1kΩ
L57 Solenoid
Q57 STN851-A
R194 4.7kΩ
R198 1kΩ
U21C LTV-247
F2
R199 1kΩ
L54 Solenoid
Q54 STN851-A
R192 4.7kΩ
R200 1kΩ
U21D LTV-247
F#2
R201 1kΩ
L55 Solenoid
Q55 STN851-A
R190 4.7kΩ
R202 1kΩ
U21A LTV-247
G2
R203 1kΩ
L56 Solenoid
Q56 STN851-A
R193 4.7kΩ
R196 1kΩ
U21B LTV-247
G#2
R197 1kΩ
L53 Solenoid
Q53 STN851-A
R191 4.7kΩ
R220 1kΩ
U23C LTV-247
A2
R221 1kΩ
L62 Solenoid
Q62 STN851-A
R211 4.7kΩ
R222 1kΩ
U23D LTV-247
A#2
R223 1kΩ
L63 Solenoid
Q63 STN851-A
R212 4.7kΩ
R224 1kΩ
U23A LTV-247
B2
R225 1kΩ
L64 Solenoid
Q64 STN851-A
R213 4.7kΩ
R214 1kΩ
U23B LTV-247
C3
R215 1kΩ
L59 Solenoid
Q59 STN851-A
R208 4.7kΩ
R216 1kΩ
U22C LTV-247
C#3
R217 1kΩ
L60 Solenoid
Q60 STN851-A
R209 4.7kΩ
R218 1kΩ
U22D LTV-247
D3
R219 1kΩ
L61 Solenoid
Q61 STN851-A
R210 4.7kΩ
R230 1kΩ
U24A LTV-247
D#3
R231 1kΩ
L65 Solenoid
Q65 STN851-A
R226 4.7kΩ
R232 1kΩ
U24B LTV-247
E3
R233 1kΩ
L66 Solenoid
Q66 STN851-A
R227 4.7kΩ
R234 1kΩ
U24C LTV-247
F3
R235 1kΩ
L67 Solenoid
Q67 STN851-A
R228 4.7kΩ
R236 1kΩ
U24D LTV-247
F#3
R237 1kΩ
L68 Solenoid
Q68 STN851-A
R229 4.7kΩ
R242 1kΩ
U25A LTV-247
G3
R243 1kΩ
L69 Solenoid
Q69 STN851-A
R238 4.7kΩ
R244 1kΩ
U25B LTV-247
G#3
R245 1kΩ
L70 Solenoid
Q70 STN851-A
R239 4.7kΩ
R246 1kΩ
U25C LTV-247
A3
R247 1kΩ
L71 Solenoid
Q71 STN851-A
R240 4.7kΩ
R248 1kΩ
U25D LTV-247
A#3
R249 1kΩ
L72 Solenoid
Q72 STN851-A
R241 4.7kΩ
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Drawn By: Owen Fujii
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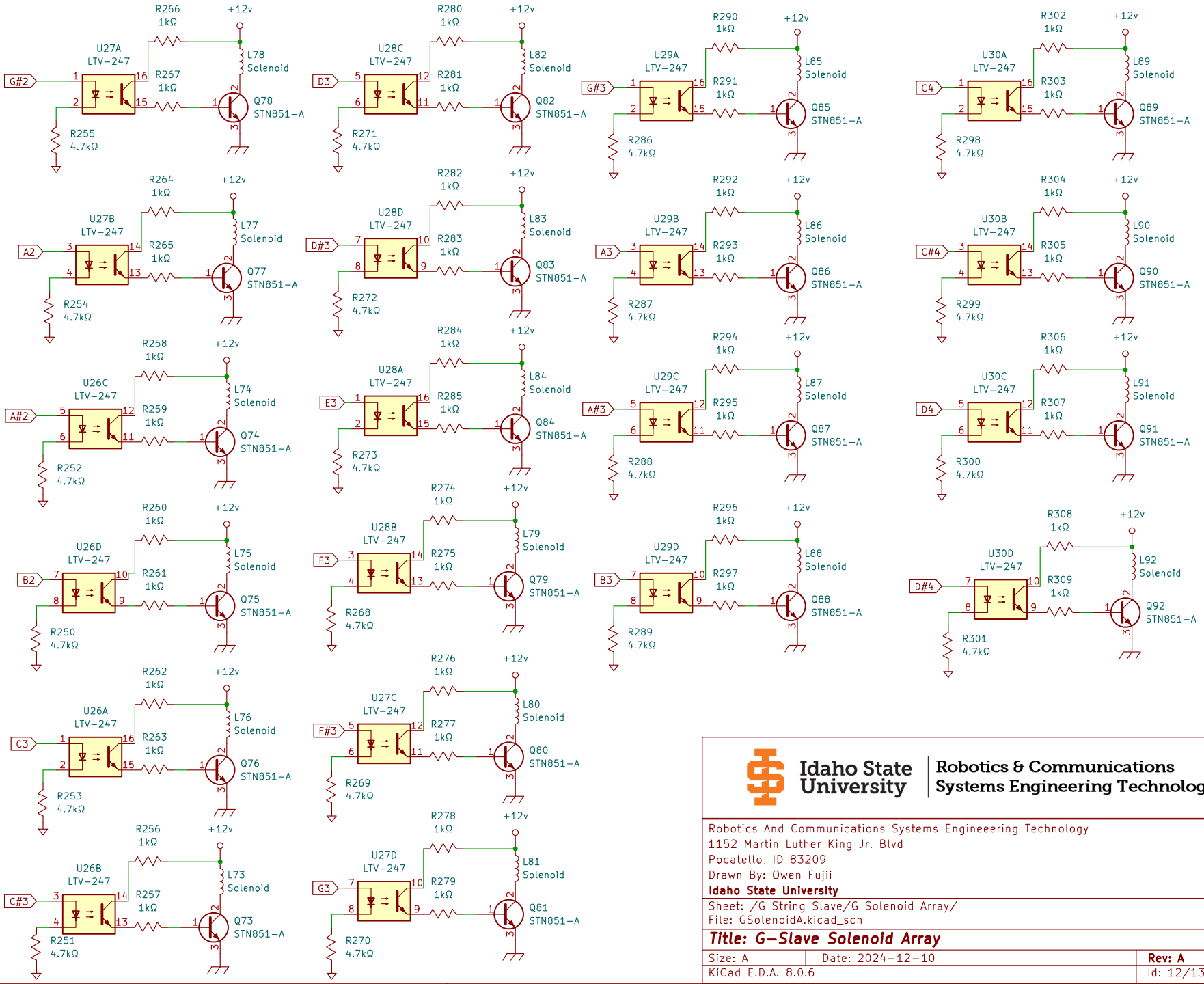
Sheet: /D String Slave/D Solenoid Array/
File: DSolenoidA.kicad_sch
Title: D-Slave Solenoid Array
Size: A
Date: 2024-12-10
Rev: A
KiCad E.D.A. 8.0.6
Id: 11/13


R266 1kΩ
+12v
U27A LTV-247
G#2
R267 1kΩ
L78 Solenoid
Q78 STN851-A
R255 4.7kΩ
R264 1kΩ
U27B LTV-247
A2
R265 1kΩ
L77 Solenoid
Q77 STN851-A
R254 4.7kΩ
R258 1kΩ
U26C LTV-247
A#2
R259 1kΩ
L74 Solenoid
Q74 STN851-A
R252 4.7kΩ
R260 1kΩ
U26D LTV-247
B2
R261 1kΩ
L75 Solenoid
Q75 STN851-A
R250 4.7kΩ
R262 1kΩ
U26A LTV-247
C3
R263 1kΩ
L76 Solenoid
Q76 STN851-A
R253 4.7kΩ
R256 1kΩ
U26B LTV-247
C#3
R257 1kΩ
L73 Solenoid
Q73 STN851-A
R251 4.7kΩ
R280 1kΩ
U28C LTV-247
D3
R281 1kΩ
L82 Solenoid
Q82 STN851-A
R271 4.7kΩ
R282 1kΩ
U28D LTV-247
D#3
R283 1kΩ
L83 Solenoid
Q83 STN851-A
R272 4.7kΩ
R284 1kΩ
U28A LTV-247
E3
R285 1kΩ
L84 Solenoid
Q84 STN851-A
R273 4.7kΩ
R274 1kΩ
U28B LTV-247
F3
R275 1kΩ
L79 Solenoid
Q79 STN851-A
R268 4.7kΩ
R276 1kΩ
U27C LTV-247
F#3
R277 1kΩ
L80 Solenoid
Q80 STN851-A
R269 4.7kΩ
R278 1kΩ
U27D LTV-247
G3
R279 1kΩ
L81 Solenoid
Q81 STN851-A
R270 4.7kΩ
R290 1kΩ
U29A LTV-247
G#3
R291 1kΩ
L85 Solenoid
Q85 STN851-A
R286 4.7kΩ
R292 1kΩ
U29B LTV-247
A3
R293 1kΩ
L86 Solenoid
Q86 STN851-A
R287 4.7kΩ
R294 1kΩ
U29C LTV-247
A#3
R295 1kΩ
L87 Solenoid
Q87 STN851-A
R288 4.7kΩ
R296 1kΩ
U29D LTV-247
B3
R297 1kΩ
L88 Solenoid
Q88 STN851-A
R289 4.7kΩ
R302 1kΩ
U30A LTV-247
C4
R303 1kΩ
L89 Solenoid
Q89 STN851-A
R298 4.7kΩ
R304 1kΩ
U30B LTV-247
C#4
R305 1kΩ
L90 Solenoid
Q90 STN851-A
R299 4.7kΩ
R306 1kΩ
U30C LTV-247
D4
R307 1kΩ
L91 Solenoid
Q91 STN851-A
R300 4.7kΩ
R308 1kΩ
U30D LTV-247
D#4
R309 1kΩ
L92 Solenoid
Q92 STN851-A
R301 4.7kΩ
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Size: A
Date: 2024-12-10
Rev: A
KiCad E.D.A. 8.0.6
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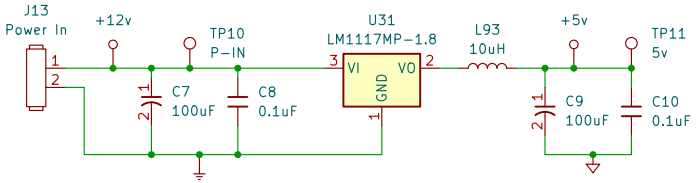

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File: PowerIn.kicad_sch

Title: Input Power Schematic

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