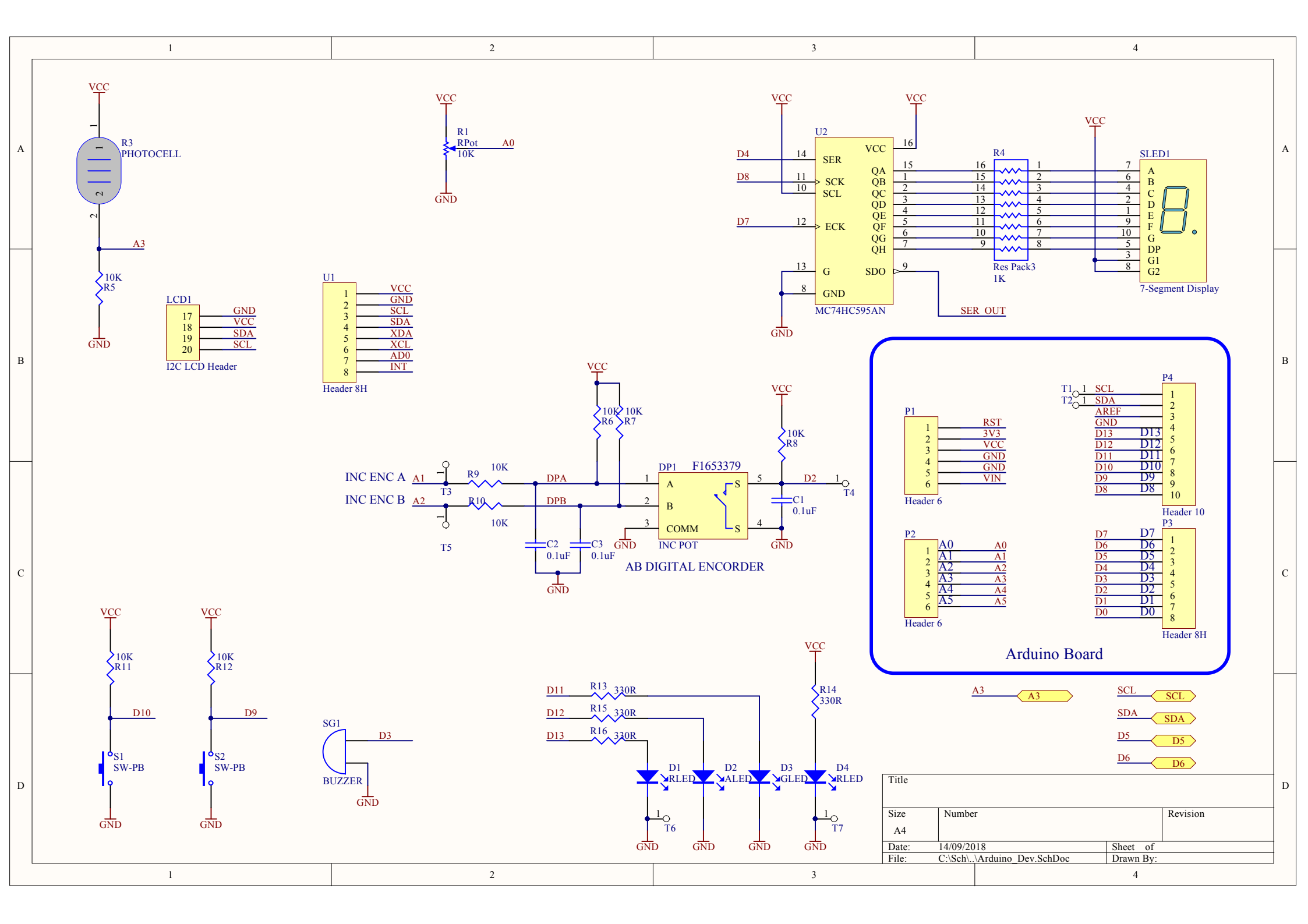
VCC
R3
PHOTOCELL
A3
10K
R5
GND
LCD1
17
18
19
20
GND
VCC
SDA
SCL
I2C LCD Header
VCC
R1
RPot
10K
A0
GND
U1
1
2
3
4
5
6
7
8
VCC
GND
SCL
SDA
XDA
XCL
AD0
INT
Header 8H
U2
D4
D8
D7
SER
SCK
SCL
ECK
G
GND
VCC
QA
QB
QC
QD
QE
QF
QG
QH
SDO
MC74HC595AN
SER_OUT
R4
Res Pack3
1K
SLED1
A
B
C
D
E
F
G
DP
G1
G2
7-Segment Display
INC ENC A
INC ENC B
A1
A2
R9
R10
10K
T3
T5
DPA
DPB
R6
R7
DP1
F1653379
A
B
COMM
S
INC POT
R8
C1
0.1uF
C2
C3
D2
T4
AB DIGITAL ENCORDER
P1
RST
3V3
VCC
GND
VIN
Header 6
P2
A0
A1
A2
A3
A4
A5
Header 6
T1
T2
SCL
SDA
AREF
D13
D12
D11
D10
D9
D8
P4
Header 10
P3
D7
D6
D5
D4
D3
D2
D1
D0
Header 8H
Arduino Board
R11
R12
D10
D9
S1
S2
SW-PB
SG1
BUZZER
D3
D11
D12
D13
R13
R15
R16
330R
R14
D1
RLED
D2
ALED
D3
GLED
D4
RLED
T6
T7
SCL
SDA
D5
D6
Title
Size
A4
Number
Revision
Date:
14/09/2018
Sheet of
File:
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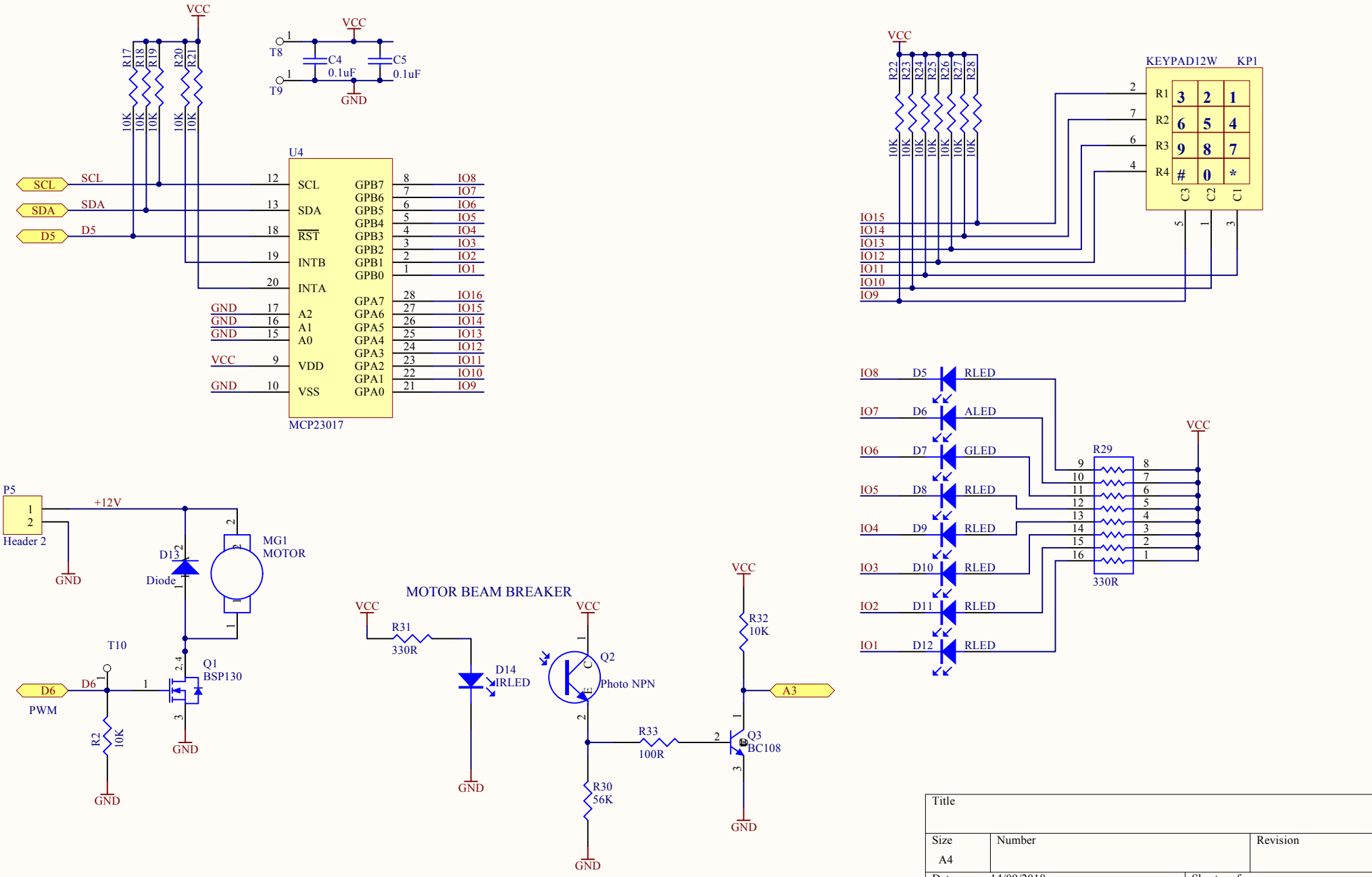
Drawn By:


VCC
R17
R18
R19
R20
R21
10K
SCL
SDA
D5
U4
SCL
SDA
RST
INTB
INTA
A2
A1
A0
VDD
VSS
GPB7
GPB6
GPB5
GPB4
GPB3
GPB2
GPB1
GPB0
GPA7
GPA6
GPA5
GPA4
GPA3
GPA2
GPA1
GPA0
GND
MCP23017
IO8
IO7
IO6
IO5
IO4
IO3
IO2
IO1
IO16
IO15
IO14
IO13
IO12
IO11
IO10
IO9
T8
T9
C4
C5
0.1uF
R22
R23
R24
R25
R26
R27
R28
KEYPAD12W
KP1
R1
R2
R3
R4
C3
C2
C1
3
2
1
6
5
4
9
8
7
#
0
*
P5
Header 2
+12V
D13
Diode
MG1
MOTOR
T10
D6
PWM
Q1
BSP130
R2
10K
MOTOR BEAM BREAKER
R31
330R
D14
IRLED
Q2
Photo NPN
R32
10K
A3
R33
100R
Q3
BC108
R30
56K
RLED
ALED
GLED
R29
330R
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Number
Revision
Date:
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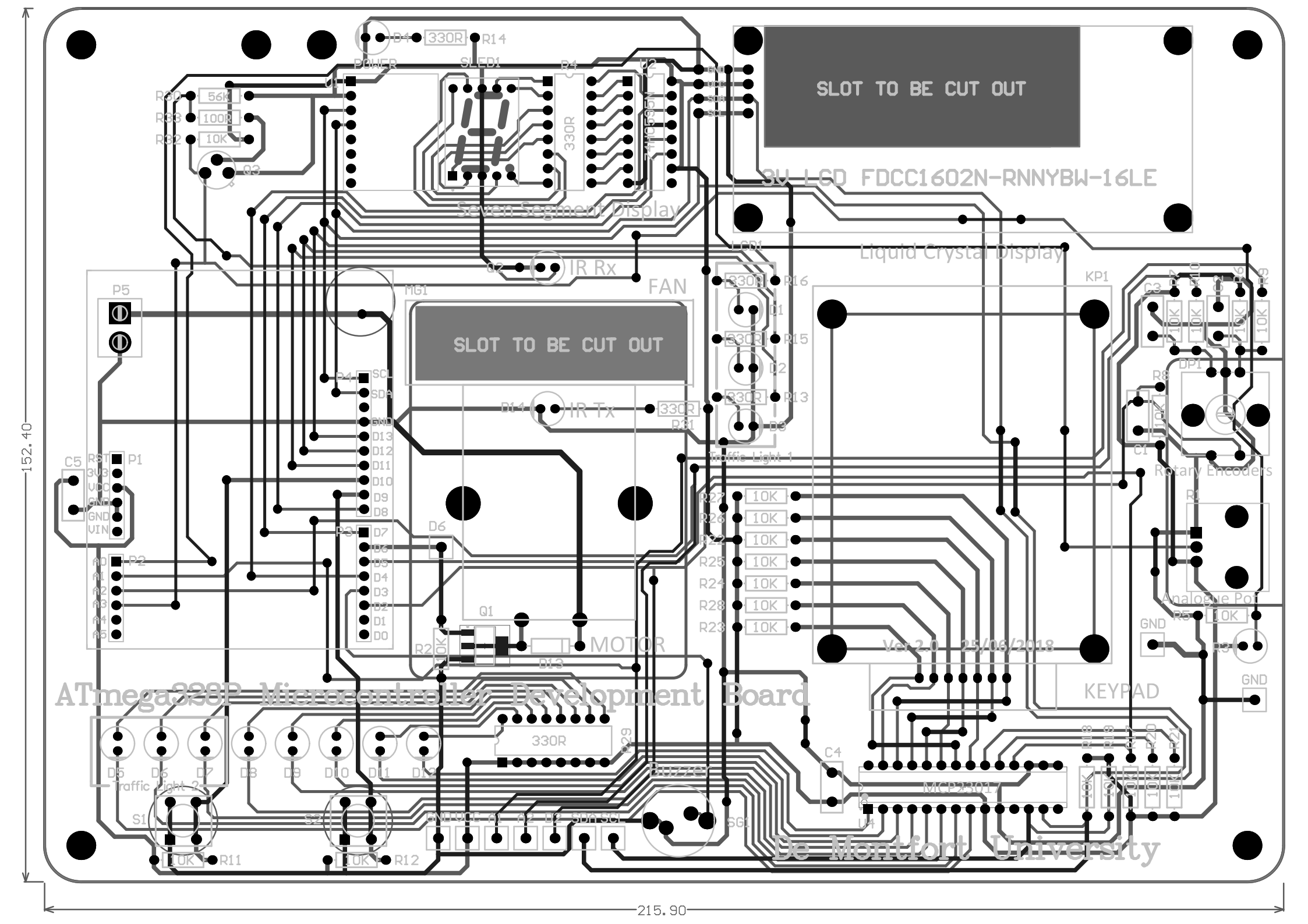
SLOT TO BE CUT OUT
3V LCD FDCC1602N-RNNYBW-16LE
Liquid Crystal Display
Seven Segment Display
IR Rx
IR Tx
FAN
MOTOR
Buzzer
Traffic Light 1
Traffic Light 2
Rotary Encoders
Analogue Pot
KEYPAD
MCP23017
Ver: 2.0 25/06/2018
ATmega328P Microcontroller Development Board
De Montfort University
152.40
215.90

Comment	Description	Designator	Footprint	LibRef	Quantity
0.1uF		C1, C2, C3, C4, C5	DECAP	CAP	5
RLED		D1, D4, D5, D8, D9, D10, D11, D12	LED	LED	8
ALED		D2, D6	LED	LED	2
GLED		D3, D7	LED	LED	2
Diode	Default Diode	D13	IN4002	Diode	1
IRLED	F1612496	D14	LED	LED	1
INC POT		DP1	PEC11	INC ENCODER	1
KEYPAD12W	KEYPAD 12 BUTTON	KP1	KEYPAD3X4	KEYPAD12W	1
I2C LCD Header	Header, 4-Pin	LCD1	LCD_I2C_Slotted	Header 4	1
MOTOR		MG1	MOTOR	MOTOR AC	1
Header 6	Header, 6-Pin	P1, P2	HDR1X6	Header 6	2
Header 8H	Header, 8-Pin, Right Angle	P3	HDR1X8	Header 8H	1
Header 10	Header, 10-Pin	P4	HDR1X10	Header 10	1
Header 2	Header, 2-Pin	P5	2PINTERM	Header 2	1
BSP130	N-channel Enhancement Mode Vertical D-MOSFET	Q1	SOT223_N	BSP130	1
Photo NPN	F1328399	Q2	LED	Photo NPN	1
BC108	NPN Bipolar Transistor	Q3	BC108	NPN	1
RPot	Potentiometer	R1	POT_VERT	RPot	1
10K		R2, R5, R6, R7, R8, R9, R10, R11, R12, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R32	RES0.4	RES1	22
PHOTOCELL		R3	LED	PHOTOCELL	1
Res Pack3	Isolated Resistor Network	R4	DIP16	Res Pack3	1
330R		R13, R14, R15, R16, R31	RES0.4	RES1	5
330R	Resistor Network	R29	DIP16	Res Pack3	1
56K		R30	RES0.4	RES1	1
100R		R33	RES0.4	RES1	1
SW-PB	Switch	S1, S2	SPNOC	SW-PB	2
BUZZER	Electrical Bell	SG1	PIEZO BUZZER	Bell	1
7-Segment Display	F1142438	SLED1	H	Dpy Blue-CA	1
TP		T1, T2, T3, T4, T5, T6, T7, T8, T9, T10	TP	TP	10
Header 8H	Header, 8-Pin, Right Angle	U1	ITG_MPU	Header 8H	1
MC74HC595AN	8-Bit Serial-Input/Serial or Prallel-Output Shift Register with Latched 3-State Outputs	U2	DIP16	MC74HC595AN	1
MCP23017	F1332087	U4	SPDIP300-SP28	MCP23017	1