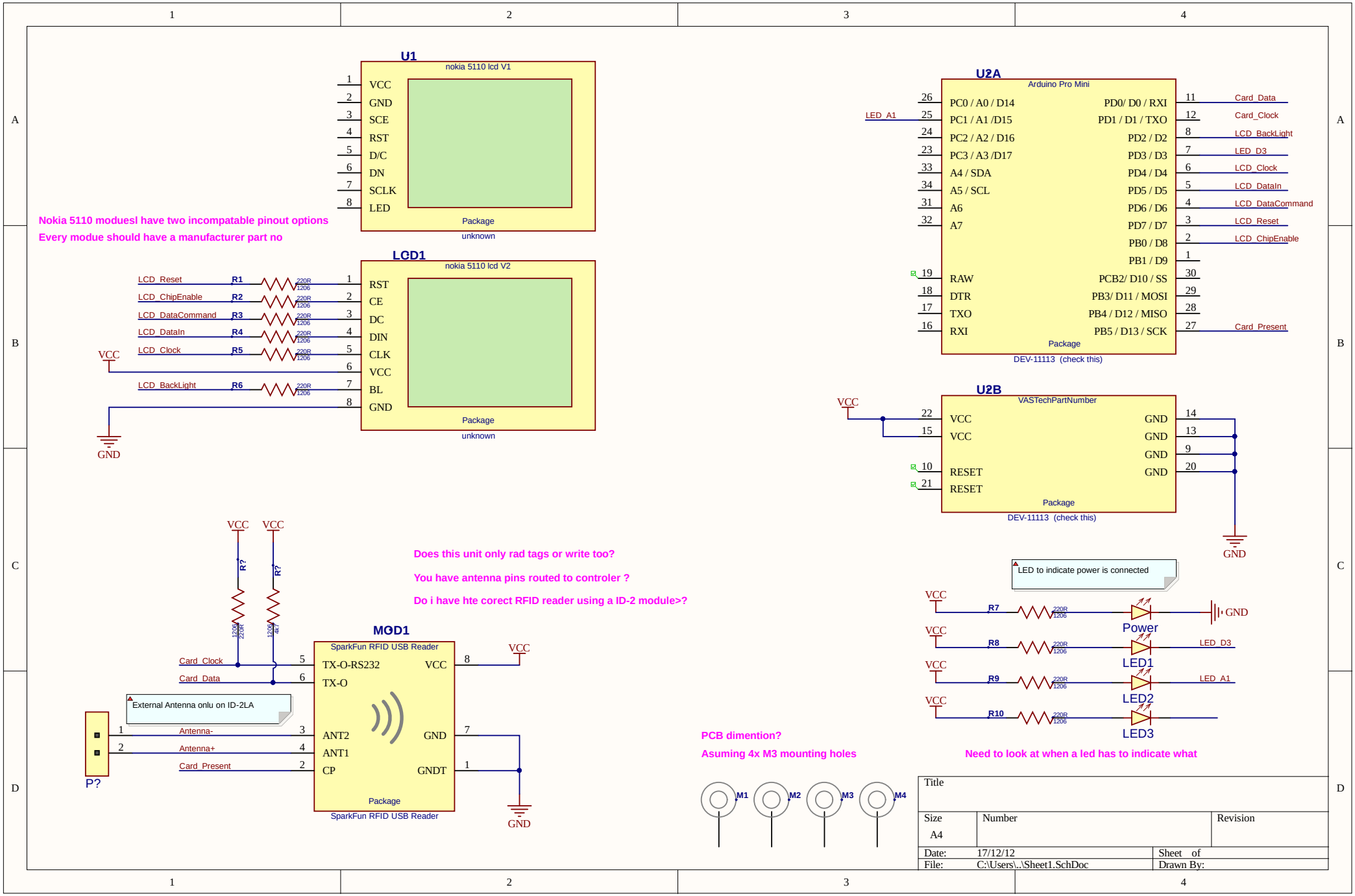

U1
nokia 5110 lcd V1
VCC
GND
SCE
RST
D/C
DN
SCLK
LED
Package
unknown
Nokia 5110 moduesl have two incompatable pinout options
Every modue should have a manufacturer part no
LCD1
nokia 5110 lcd V2
RST
CE
DC
DIN
CLK
VCC
BL
GND
LCD_Reset
LCD_ChipEnable
LCD_DataCommand
LCD_DataIn
LCD_Clock
LCD_BackLight
R1
R2
R3
R4
R5
R6
220R
1206
VCC
GND
U2A
Arduino Pro Mini
PC0 / A0 / D14
PC1 / A1 /D15
PC2 / A2 / D16
PC3 / A3 /D17
A4 / SDA
A5 / SCL
A6
A7
RAW
DTR
TXO
RXI
PD0/ D0 / RXI
PD1 / D1 / TXO
PD2 / D2
PD3 / D3
PD4 / D4
PD5 / D5
PD6 / D6
PD7 / D7
PB0 / D8
PB1 / D9
PCB2/ D10 / SS
PB3/ D11 / MOSI
PB4 / D12 / MISO
PB5 / D13 / SCK
LED_A1
Card_Data
Card_Clock
LCD_BackLight
LED_D3
LCD_Clock
LCD_DataIn
LCD_DataCommand
LCD_Reset
LCD_ChipEnable
Card_Present
Package
DEV-11113 (check this)
U2B
VASTechPartNumber
VCC
VCC
RESET
RESET
GND
GND
GND
GND
Package
DEV-11113 (check this)
GND
Does this unit only rad tags or write too?
You have antenna pins routed to controler ?
Do i have hte corect RFID reader using a ID-2 module>?
MOD1
SparkFun RFID USB Reader
TX-O-RS232
TX-O
ANT2
ANT1
CP
VCC
GND
GNDT
Package
SparkFun RFID USB Reader
Card_Clock
Card_Data
External Antenna onlu on ID-2LA
Antenna-
Antenna+
Card_Present
P?
R?
R?
1206
220R
1206
4k7
VCC
VCC
VCC
GND
LED to indicate power is connected
R7
R8
R9
R10
220R
1206
Power
LED1
LED2
LED3
LED_D3
LED_A1
PCB dimention?
Asuming 4x M3 mounting holes
M1
M2
M3
M4
Need to look at when a led has to indicate what
Title
Size
A4
Number
Revision
Date: 17/12/12
File: C:\Users\..\Sheet1.SchDoc
Sheet of
Drawn By:

PCB MANUFACTURING INFORMATION

CONSTRUCTION

FAB SPECIFICATION	IPC-6012 CLASS	☐ 2	☐ 3	☐ MIL-SPEC P-55110
LEAD-FREE RoHS	■ YES	☐ NOT REQD		
MATERIAL	☐ FR4	☐ FR408HR	☐ OTHER_____	
SPECIAL CORES	☐ YES	■ NO	☐ OTHER_____	
FINAL PCB THICKNESS	☐ ????			
THICKNESS TOLERANCE	☐ 10%			
LAYER COUNT	☐ ????			
LAYER STACK-UP	☐ MECHANICAL LAYER		☐ FILENAME _____	
ALLOW PCB ROTATION	■ NO	☐ YES - 90 / 270 DEGREES		
IMPEDANCE CONTROL	☐ NO	☐ YES	☐ PER STACKUP	
SUPPLY TEST COUPONS	☐ NO	■ YES		
BOARD EDGE	■ NO EXPOSED COPPER			
BOW & TWIST	■ 0.75% SMT (IPC-TM-650 Method 2.4.22)			
PROFILING	■ NC-ROUTE	☐ V-SCORE	☐ BOTH AS INDICATED	
PROFILE TOLERANCE	■ +/- 0.15mm	☐ +/- 0.2mm	☐ +/-0.25mm	

CONDUCTIVE MATERIAL

QTY SIGNAL LAYERS	☐ ???		
QTY COPPER PLANES	☐ ???		
MIN TRACE WIDTH	☐ 0.10mm		
MIN CLEARANCE	☐ 0.10mm		
Cu TRACE TOLERANCE	☐ +/- 5%mm	■ +/- 10%	☐ +/- 15%
Cu THICKNESS INTERNAL	☐ 17um	☐ 35um	☐ PER STACKUP
FINAL Cu THICKNESS EXT	☐ 17um	☐ 35um	☐ PER STACKUP
PLATING FINISH	■ ENIG	☐ FLASH GOLD	☐ OTHER____
EXTERNAL PLATING	■ CLASS 2 - 20um	☐ CLASS 3 - 25um	☐
SELECTIVE Au PLATING	■ NO	☐ AS INDICATED	☐ ON EDGE FINGERS

INTERCONNECTS

DRILL PROCESS	■ THT	☐ BLIND & BURIED VIAS	☐ MICRO VIAS
FILLED VIAS	☐ NO	☐ YES	☐ SELECTIVE
IPC-4761 VIA TYPE	☐ I(a) TENTED	☐ VI - FILLED & COVERED	☐ VII - FILLED & CAPPED
FILLING METHOD	☐ CONDUCTIVE	☐ NON-CONDUCTIVE	
HOLE PLATING	■ CLASS 2 - 20um	☐ CLASS 3 - 25um	
MIN DRILL SIZE	☐ 0.25mm		
MIN FINISHED HOLE	☐ 0.15mm		
MIN HOLE TO COPPER	☐ 0.2mm		
FINAL HOLE SIZE	■ AS PER DRILL TABLE		☐ CUSTOM INSTRUCTION
HOLE SIZE TOLERANCE	☐ +/- 0,075mm	■ +/- 0,1mm	☐ +/- 0,215mm
HOLE POSITION TOL (GDT)	☐ 0.075mm	■ 0.085mm	
MIN ASPECT RATIO	☐ 6.4: 1		

COSMETICS

SOLDERMASK SIDES	☐ TOP	☐ BOT	■ BOTH SIDES			
SOLDERMASK TYPE	■ PHOTO IMAGEABLE (SMOBC)					
SOLDERMASK COLOUR	☐ GREEN	☐ BLUE	☐ RED	☐ BLACK	☐ WHITE	
SOLDERMASK WEBBING	☐ GANG RELIEF NOT ALLOWED, UNLESS BELOW CAPABILITY					
SILKSCREEN COLOUR	■ WHITE	☐ YELLOW	☐ OTHER _____			
SILKSCREEN PRINT	■ NO LEGEND TO BE APPLIED OVER SOLDER PADS					
SILKSCREEN QTY	☐ TOP	☐ BOT	■ BOTH SIDES			
SILKSCREEN OVER PADS	■ NOT PERMITTED, PLEASE REMOVE IF PRESENT					

MANUFACTURING DEVIATIONS

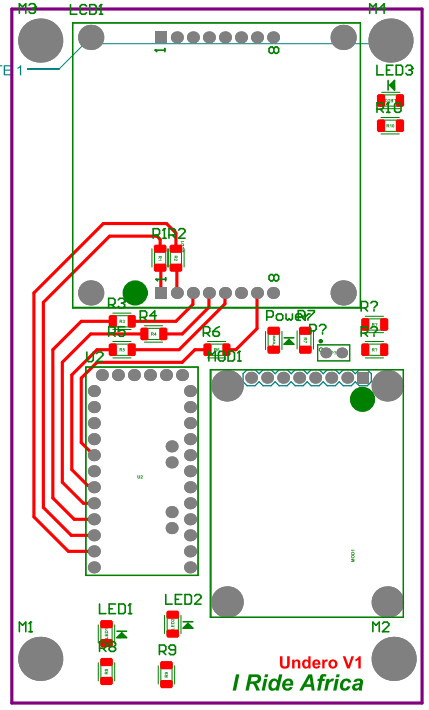
PAD REMOVAL	■ NO	☐ ALLOWED ON UNUSED PADS ON INNER LAYERS	
TEARDROPPING	☐ NO	■ YES	
THIEVING	☐ NO	☐ WHERE INDICATED	■ ALLOWED ON PANEL STRIPS

ADDITIONAL REQUIREMENTS

ELECTRICAL TEST	☐ NONE		■ FLYING PROBE		
MANUFACTURER LOGO	■ ALLOWED	☐ NO			
BATCH No ON S/SCREEN	■ YES	☐ NO			
CERTIFICATE REQ'D	☐ E-TEST	■ UL94	☐ IPC-6011/12	☐ MIL-SPEC P-55110	
SILKSCREEN SERIAL #	☐ YES	■ NO			

FINGER EDGE CONNECTOR

PLATING THICKNESS	☐ 1um	☐ 2um	☐ 5um
PLATING TYPE	☐ HARD GOLD		☐ ENIG
CHAMPHER ANGLES	☐ 20°	☐ 30°	☐ 45°
CHAMPHER HEIGHT	☐ ???		
DETAIL	☐ NO	☐ YES, SEE MECHANICAL LAYER	



P-AC

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0.010mm	3.5	
3	Component Side	Copper	0.036mm		
4	Dielectric 1	FR-4	1.500mm	4.2	
5	Bottom Layer	Copper	0.036mm		
6	Solder Side	Solder Resist	0.010mm	3.5	
7	Bottom Overlay				

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	.PRJ_Title
PCB FILENAME: Undero.PcbDoc	LAYER NAME Bottom Overlay Side
	DOCUMENT NUMBER .PRJ_Number_PCB

PCB ASSEMBLY INSTRUCTIONS

1: BARE PCBS BUILD	☐ NO	■ YES
2: WASH PCB	■ NO	☐ YES
3: THL COMPONENT LEGS	■ < 2mm CUT BEFORE ASSEMBLY	
4: BREAK PCB FROM PANEL	■ NO	☐ YES
5: X-RAY PCB	■ NO	☐ YES
6: OPTICAL INSPECTION	☐ NO	■ YES
7: BASIC ELECTRICAL TEST	■ NO	☐ YES
8: ASSEMBLY CALIBRATION	■ NO	☐ YES
9: PRODUCTION PROGRAMMING	■ NO	☐ YES
10: CONFORMAL COATING	■ NO	☐ YES
11: STATIC SENSITIVE	☐ NO	■ YES

Note 1: Space allocated on Overley layer for manufacturers markinhgs

Assembly Variants: [No Variations]

I Ride Africa	MANUFACTURING ASSEMBLY DRAWING
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	.PRJ_Number_PCB
	.PRJ_Number_ASSY

SHEET 1 OF 2

Item #	mn Name Error:Manufa	#Column Name Error:Manufacturer No	Quantity	#Column Name Error:Note	Designator	Description	Footprint	Comment	LibRef
1			1		LCD1	nokia 5110 lcd V2	Nokia 5110 GLCD 84x48	nokia 5110 lcd V2	nokia 5110 lcd V2
2			4		M1, M2, M3, M4	Mounting Hole	M3 Mounting Hole	1206	
3			1		MOD1	SparkFun RFID USB Reader	SparkFun RFID USB Reader	SparkFun RFID USB Reader	SparkFun RFID USB Reader
4			1		P?	Header 2x1 2.54mm	Con Molex 90120 2-Way	VASTechPartNumber	
5			12		R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R?, R?	Resistor	Res 1206 H0-55	1206	[NoValue], [NoValue], [NoValue], [NoValue], [NoValue], [NoValue], [NoValue], [NoValue], [NoValue], [NoValue], 220R, [NoValue]
6			1		U1	nokia 5110 lcd V1	Nokia 5110 GLCD 84x48	nokia 5110 lcd V1	nokia 5110 lcd V1
7			1		U2	Arduino Pro Mini	ARDUINO PRO MINI	Arduino Pro Mini	Arduino Pro Mini