This is the Revision A verion of the CompassDT1 RoboBrick. The status of this project is work in progress.

CompassDT1 Robobrick (Revision A)

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1. Introduction

The CompassDT1 RoboBrick is a RoboBrick that can be used to connect to a Devantech CMPS01 compass module. This compass uses two Philips KMZ10A megnetic field sensors to measure the direction accurate to 0−3599 (i.e. .01 degree accuracy.) Please note that the magnetic field inside a build can be off by 10's of degrees.

2. Programming

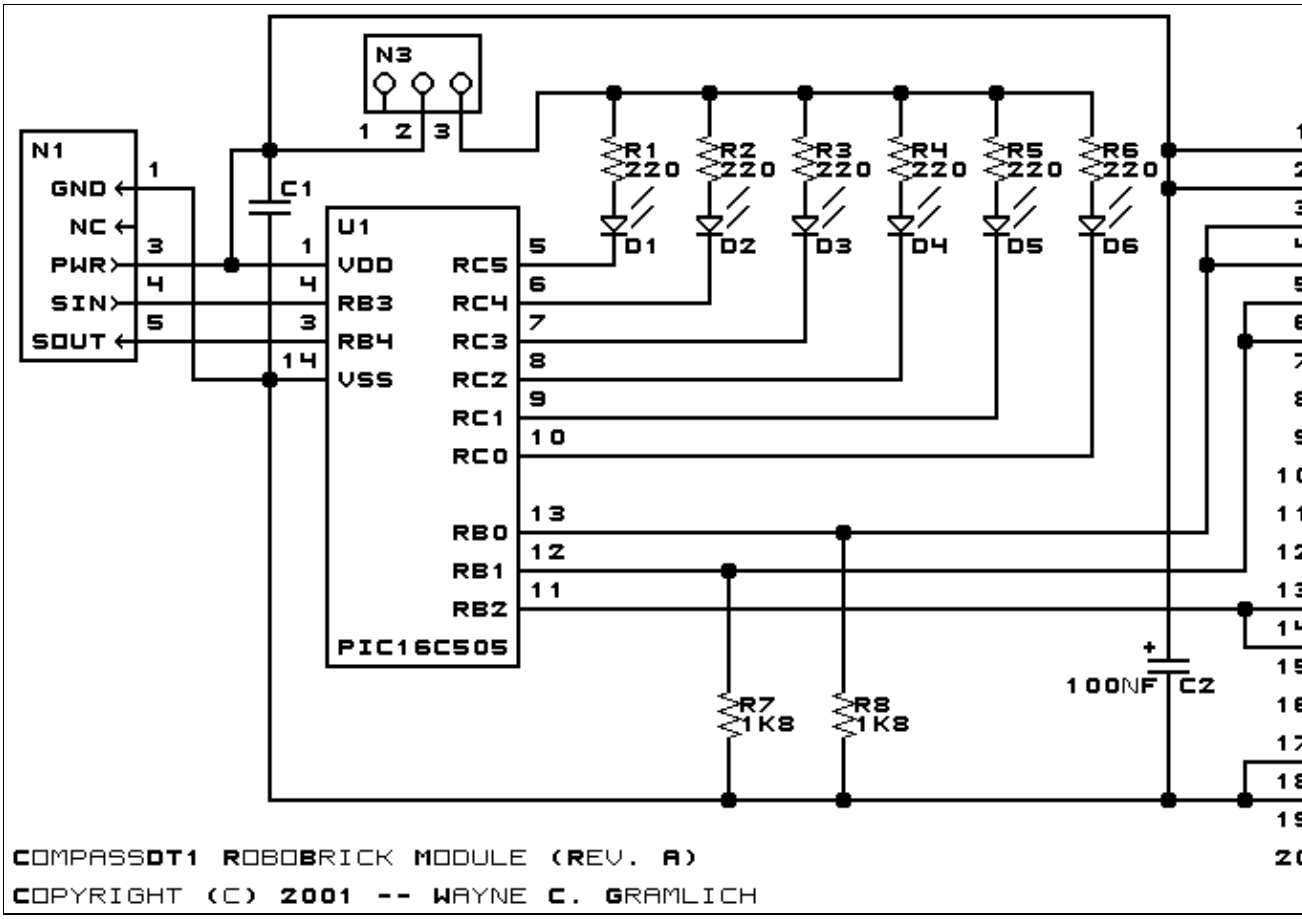
{To be written}

3. Hardware

The hardware consists of a circuit schematic and a printed circuit board.

3.1 Circuit Schematic

The schematic for the CompassDT1 RoboBrick is shown below:



The parts list kept in a separate file −− compassdt1.ptl.

3.2 Printed Circuit Board

The printed circuit board files are listed below:

compassdt1_back.png
: The solder side layer.

compassdt1_front.png
: The component side layer.

compassdt1_artwork.png
: The artwork layer.

compassdt1.gbl
: The RS−272X "Gerber" back (solder side) layer.

compassdt1.gtl
: The RS−272X "Gerber" top (component side) layer.

compassdt1.gal
: The RS−272X "Gerber" artwork layer.

compassdt1.drl
: The "Excellon" NC drill file.

compassdt1.tol
: The "Excellon" tool rack file.

4. Software

The CompassDT1 software is available as one of:

compassdt1.ucl
: The µCL source file.

compassdt1.asm
: The resulting human readable PIC assembly file.

compassdt1.lst
: The resulting human readable PIC listing file.

compassdt1.hex
: The resulting Intel® Hex file that can be fed into a PIC16C505 programmer.

The CompassDT1 test software is available as one of:

compassdt1_test.ucl
: The µCL source file.

compassdt1_test.asm
: The resulting human readable PIC assembly file.

compassdt1_test.lst
: The resulting human readable PIC listing file.

compassdt1_test.hex
: The resulting Intel® Hex file that can be fed into a PIC16F628 programmer.

5. Issues

Any fabrication issues that come up are listed here.

A. Appendix A: Parts List

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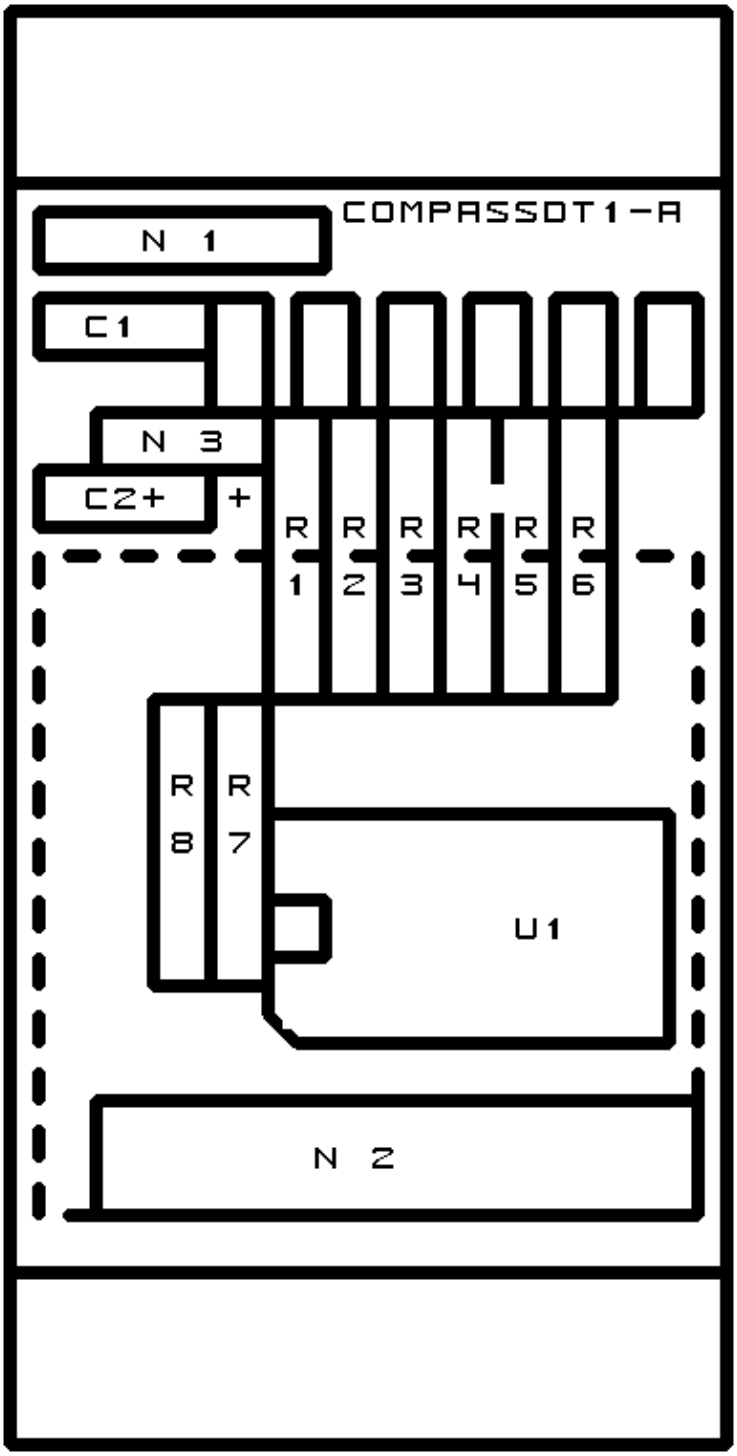
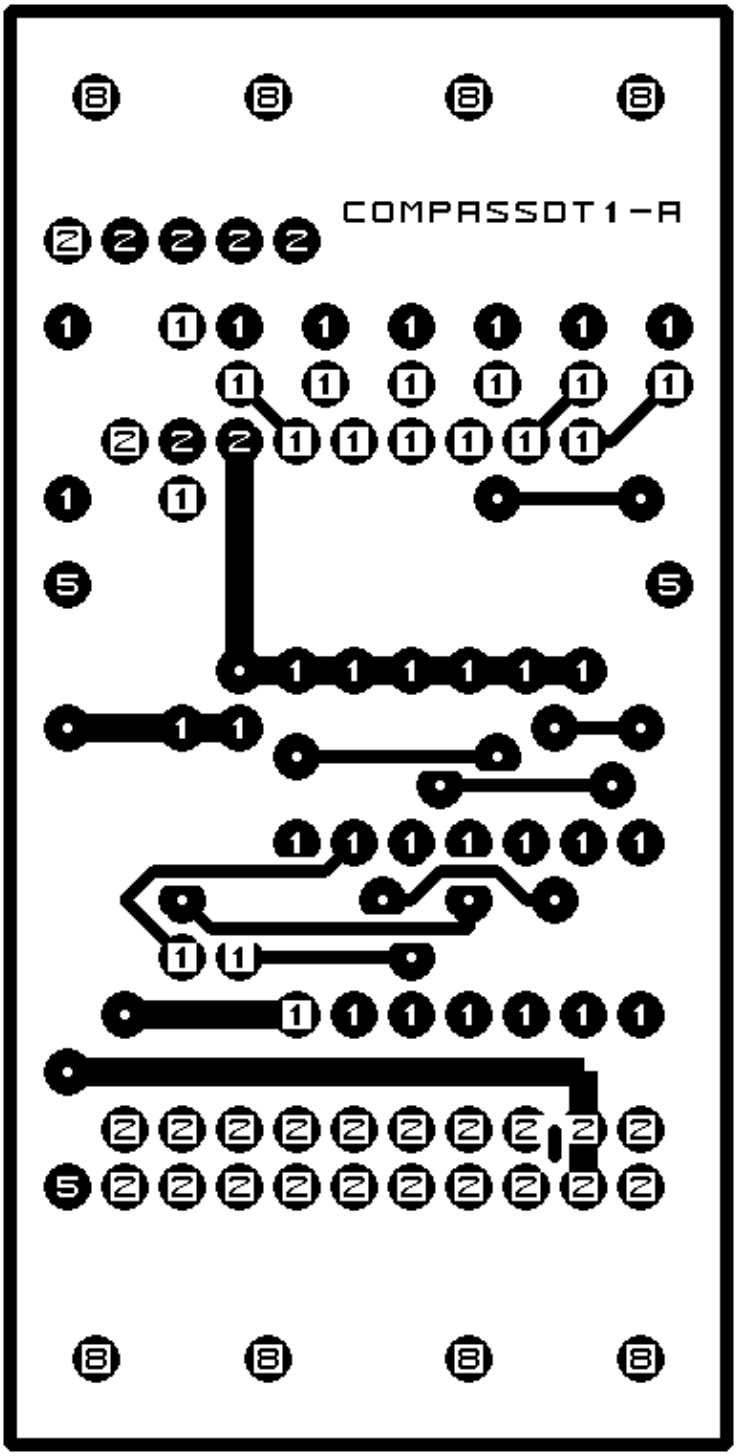
# Parts list for CompassDT1 RoboBrick (Rev. A)
#
C1: Capacitor10pF − 10 pF Ceramic Capacitor [Jameco: 15333]
C2: Capacitor100nF − .1 uF Tantalum Capacitor [Jameco: 33486]
D1−6: LEDGreen − Green LED [Jameco: 34606]
N1: Header1x5.RBSlave − 1x5 Male Header [5/40 Jameco: 160881]
N2: Header2x10.CompassDT1 − 2x10 Female Header [20/80 Jameco: 117196]
N3: Header1x3.CompassDT1 − 1x3 Male Header [3/40 Jameco: 160881]
R1−6: Resistor220 − 220 Ohm 1/4 Watt Resistor [Jameco: 30470]
R7−8: Resistor1K8 − 1.8K Ohm 1/4 Watt Resistor [Digikey:1K8−QBK−ND]
U1: PIC16C505.CompassDT1 − Microchip PIC16C505 [Digikey: PIC16C505−04/P−ND]
```

B. Appendix B: Artwork Layer



C. Appendix C: Back (Solder Side) Layer



D. Appendix D: Front (Component Side) Layer