Readme

This is the readme file for the Electronic Compass (E.C.) project. This project has the aim to create a low-cost, open-source electronic geological compass. This repository has the objective to document and share the hardware construction process and software development needed.

The planned compass features are:

- Measure dip and dip direction of a plane
- Measure strike slip, trend and plunge
- Different measures profiles
- Automatic txt files save
- Acceletometer and magnetometer calibration
- More to come!

Licences

Since the E.C. project covers hardware and software licences that cover both are necessary. You can find the choosen licences in the "Licences folder" in PDF and .txt format.

Table 1: Licences used

Type	License name	Source link
Software	GNU General Public License v3.0 or later	SPDX
Hardware	CERN-OHL-S-2.0 or any later version	OHWR

The copyrights to both hardware and software are explicited in the copyright.pdf and copyright.md files. If you want to apply any kind of change you **always need to log it in the changes.md file** and include all the original source and copyright files as per licences.

Components list

The Electronic Compass components are searched to be the most cost-effective and easy to solder available that I could find. I provide the links from where the components are purchased but some are europe based (mostly Germany) so check if worldwide shipping is convenient or not.

Table 2: Table of components

Component Name	Quantity	Price	Link
Adafruit adalogger M0	x1	26€	ThePiHut
GY-61 ADXL335 acceletometer	x1	€6.79	AZ-Delivery
128x32 Oled display	x1	€6.29	AZ-Delivery

Component Name	Quantity	Price	Link
GY-271 QMC5883L magnetometer	x1	€5.79	AZ-Delivery
SD card	x1	may vary	Amazon
1200mAh 3.7V LiPo battery	x1	5.36€	Welectron
Potentiometer	x1	?	Amazon
Buttons	x?	?	Amazon

Software used

To have a truly open-source project the software used is 100% free and open-source from the CAD project files to the software used to code and flash the code on the adalogger chip.

Table 3: Software used

Type	Software program	Source link
CAD	FreeCAD	FreeCAD
Electronics	KiCad EDA	KiCad
Code environment and upload	ArduinoIDE	Arduino