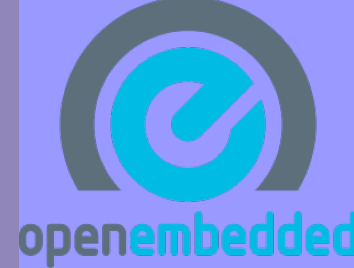




AMS 2015 – Session 1B

Open Data Standards and Sharing



Open Data Standards and Open Source Modeling Tools: The GPL'd Release of Winds On Critical Streamline Surfaces (GWOCSS)

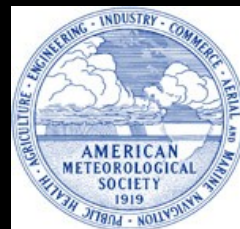
Presented by Stephen L Arnold

Principal Scientist @ Vanguard Computer Technology Labs

Assoc. Faculty, Allan Hancock College

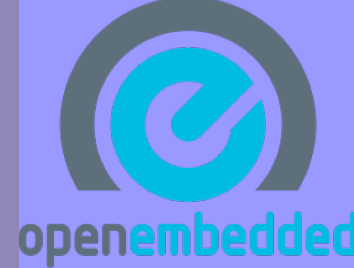
Yocto/OpenEmbedded & Gentoo Linux Developer

<http://www.vctlabs.com> <sarnold_at_vctlabs.com>





What is G(NU)WOCSS?



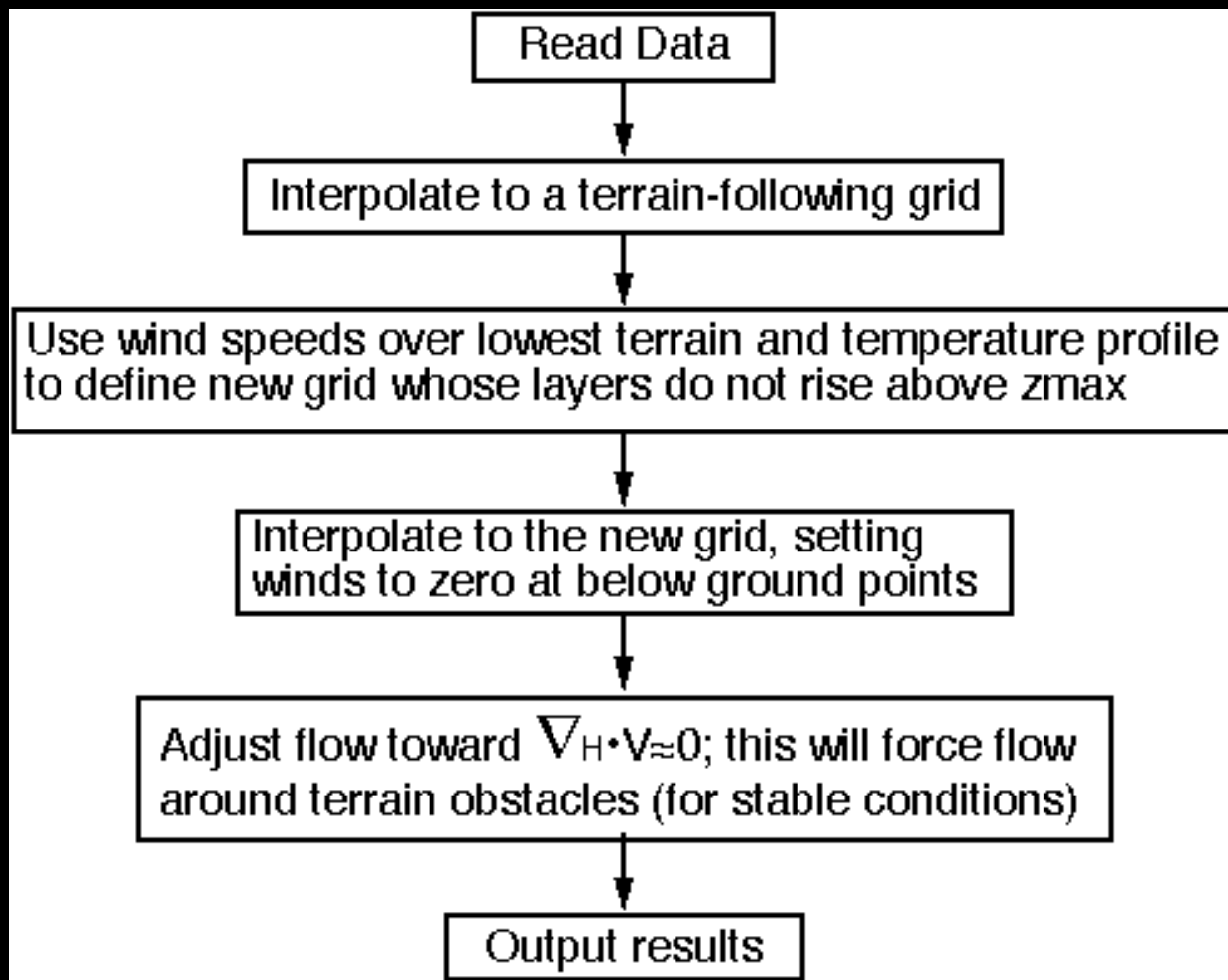
Short History of Winds On Critical Streamline Surfaces

<https://github.com/sarnold/gwocss>

<http://www.met.sjsu.edu/cgi-bin/wind/windbin.cgi>

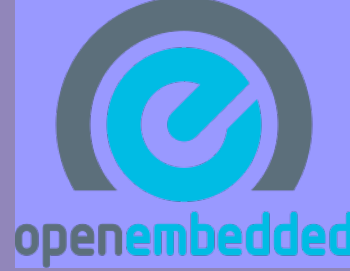
- Mass conservation model (Estoque & Bhumralkar, 1969)
 - Sigma-coordinate
 - Variational calculus
- Endlich (1967): variational => iterative adjustment
 - Faster, but not perfectly non-divergent
- Endlich & Ludwig (1982): sigma => user defined surfaces
 - Allowed surfaces to intersect terrain, but
 - Required user to define surface shapes for each case
 - Iterative adjustment forces flow around obstacles
- Critical streamline concepts to define surfaces
 - Analogous to do what skilled analysts do
 - Iterative adjustment forces flow around obstacles

Functional Flow





What Is Open Source?



aka Free/Libre Open Source Software (FOSS/FLOSS)

- Now includes hardware, audio/video, text, graphics, other

Has "open" license

- GPL/LGPL, BSD, MIT, Apache, EPL, Creative Commons

Source code, hardware specs, other materials, are freely available for use and modification

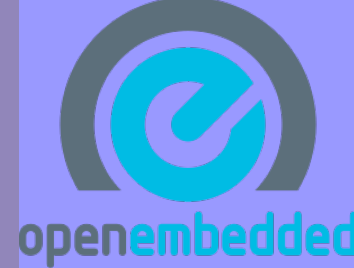
- Use restrictions (if any) vary by license

Freeware/shareware, demo-ware, public domain, are not open source and outside of the FLOSS definition. FLOSS itself is classed as a "commercial component" by FAR (D. Wheeler, 2006)

U.S. law governing federal procurement (specifically U.S. Code Title 41, Chapter 7, Section 403) defines "commercial item" as including "Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes [i.e., it has some non-government use], and (i) Has been sold, leased, or licensed to the general public; or (ii) Has been offered for sale, lease, or license to the general public ..."



FOSS Organizations



GNU and the Free Software Foundation

- Core free OS components & license philosophy
 - GNU General Public License
 - GNU Affero General Public License
 - GNU Lesser General Public License

Apache Software Foundation

- Core free enterprise-grade software & licenses
 - WWW, cloud, HA, developer tools
 - Apache License

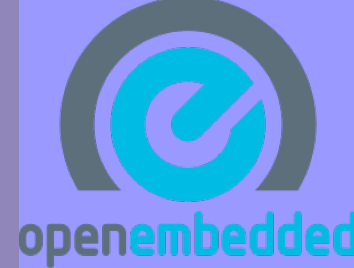
Creative Commons

- CC base, w/ attribution, commercial use, more

Linux Foundation / Yocto Project / Arduino / Udoo



FOSS Users & Contributors

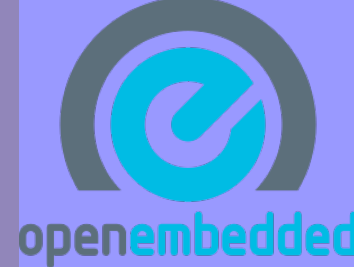


- NASA, NOAA/NWS, NIST, DoD, NSA, DoE
- IBM – software, hardware specs, licensing, developer support, documentation
- Sun, Oracle - software, hardware specs, licensing
- HP, Dell, Amazon, ebay, Google, FaceBook
- LG, Samsung, Comcast, Linksys, Oracle
- Intel, AMD, TI, Freescale, Broadcom, Apple
- UC Berkeley, Carnegie-Mellon, MIT, Oxford
- World Bank, GFDRR, ETH Zurich, GEM

FOSS Built The Internet (not Al Gore)



It's All About Sharing (and proper licensing)



“Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation. Our vision is nothing less than realizing the full potential of the Internet — universal access to research and education, full participation in culture — to drive a new era of development, growth, and productivity.”

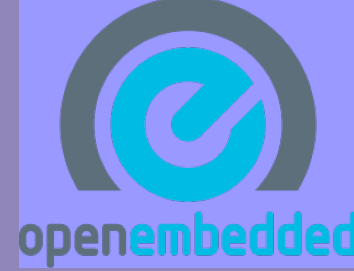
“The idea is simple: to publish all of our [MIT OCW] course materials online and make them widely available to everyone.”

“Understanding Risk (UR) is a global community of experts and practitioners in the field of disaster risk assessment. UR community members share knowledge and experience,¹ collaborate, and discuss innovation and best practice in risk assessment.”

“CrisisCommons seeks to advance and support the use of open data and volunteer technology communities to catalyze innovation in crisis management and global development.”



A Plethora of Open Source Licenses



GPL, LGPL, AGPL, BSD, MIT, Apache, EPL, Creative Commons Attribution-NonCommercial-ShareAlike?

- Which do you choose?

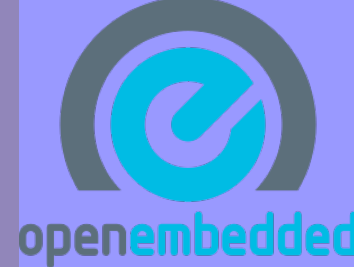
Answer: It depends...

- Easy answer for noncommercial, public, nonprofit, government, or educational organizations
- Thoughtful answer typically required for commercial organizations

Software typically benefits the most people via one of the GNU Public Licenses; other materials would use one from Creative Commons.



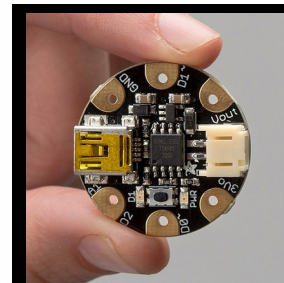
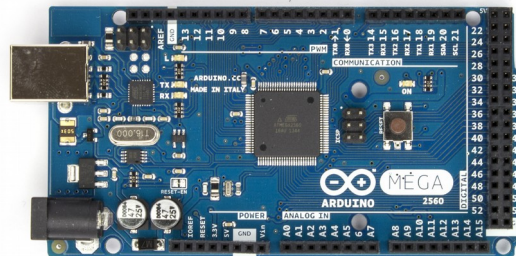
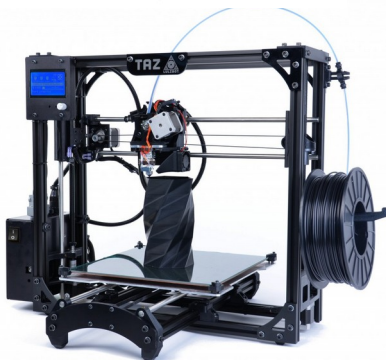
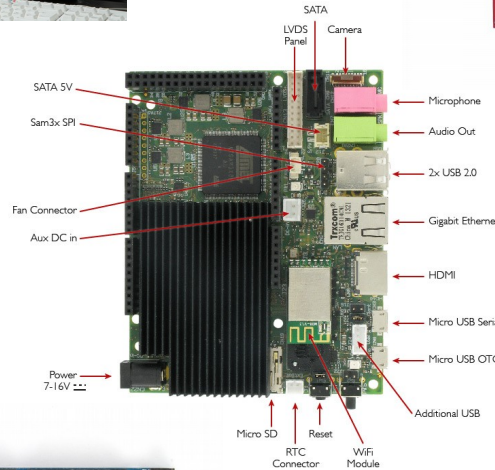
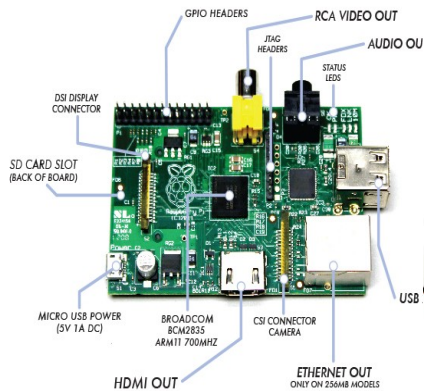
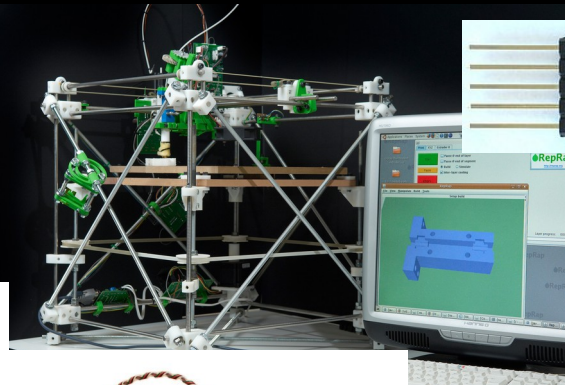
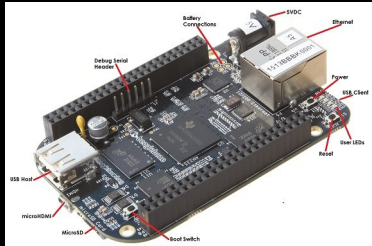
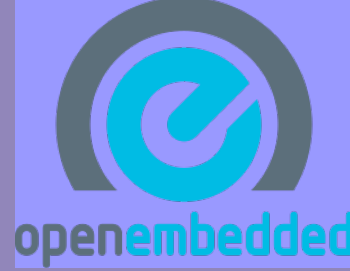
Use The Source, Luke...



- Open Source Community and Culture
 - Terminology, both formal and colloquial (eg, the [Jargon File](#) or [Hacker's Dictionary](#))
 - Process, or “How to contribute to this project”
 - Gentoo Linux: [Become a Developer](#)
 - [Mozilla Developer Network](#)
 - Do your homework, get free support ([How to ask questions](#))
- How to participate in open source
 - If you use it, file a good bug report, document a feature, contribute a patch, help out other users
 - If you create it, do it in the open using open source tools and follow open source processes (ie, expose your bug tracker, source repos, etc)
 - Hold an Open Source Process/IT Review (eg, [GEM IT Report](#))

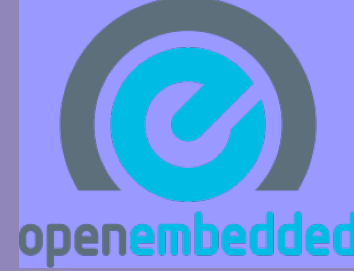


Open Source Hardware Examples

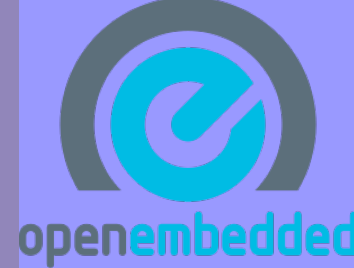




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<<http://www.vctlabs.com>>

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