Our “Open” Roadmap … An Introduction to the Table

ShopBot evolved from the vision of making the amazing power of digitally controlled tools accessible to individuals and small shops. Our tools originated as a free set of plans and instructions (shared and developed over Compuserve many years ago), a list of parts to purchase at the hardware store, and some motors and electronics that we packaged and sold. We were basically “open source” before we knew what it meant.

Our software remains available for free download and updating, along with pin-outs and wiring diagrams for our Control Card and Control Boxes. We maintain an open and wide-ranging forum. In addition, our community site for “open distributed manufacturing”, 100kGarages.com, supports small shops doing digital fabrication of all types using any equipment at no cost to participants.

As a company we believe in being as open and transparent as possible. In particular, we believe in the power of open collaboration made possible by the internet. Our plan for our new, next generation Control Cards will be to develop them as open source hardware projects and for them to run open source CNC software. Our current Handibot Smart Tool is a total open innovation project, from design to production.

Our new Control Card will be transitional. It will be open in hardware design and software, but our goal is for it to run either the current ShopBot PC Control software (based on a ShopBot-specific firmware load), or to run new open source CNC software (based on an alternative firmware of a new, open-source, CNC motion system). The new firmware represents an emerging open source and potentially quite powerful, CNC common/universal system. This open CNC system has its roots in a program called “Grbl” which runs on Arduinos (Skogsrud) and evolved through TinyG (Porter & Hart) to soon run on the Arduino DUE (Hart, Porter, & Giseburt). We are supporting the development of this system with the plan that it will eventually come to serve as our low level motion core for all our tools. It has the primary advantage for our users of being the basis for the evolution of “thin” CNC applications that will run on virtually any type device.

NOTES TO THE ATTACHED TABLE:

* The origins of ShopBot’s current CNC software dates back almost 16 years. We have come to recognize that it does not represent an efficient system to build further on. While serving today’s purposes, it has so many dated legacy components that it would be difficult to describe its internals to future collaborators and developers. Most importantly, it was developed in the environment of the very limited capability of uControllers of many years ago and thus placed much more functionality on the PC than is now necessary for the interface devices that control a CNC tool. Thus, while it makes sense to us to move forward with a new open source controls for ShopBots (that will work with both current and

future ShopBots), we see no value in pursuing the open development of our current PC-oriented software other than making sure to create the transitional option described above.

** Refers to the system G2 system developed for motion control from TinyG for the Arduino DUE® by Synthetos.

*** ShopBot maintains two open digital fabrication communities. One, www.100kGarages.com, supports distributed manufacturing and serves as a “match-maker” for those looking to get something made with those offering digital fabrication and design services. The other, www.100kSchools.corg, provides digital fabrication resources for teachers and educators.

	Type	Availability	Free	What	Open	License
Software Current						
CNC Programming language	Syntax System	OpenSBP.org	Yes	lexicon	Yes	OpenSBP License
ShopBot Application	PC application Code	ShopBotTools.com	Y-1	full runtime app	NO*	std shrinkwrap
Control Card Firmware	uC software	ShopBotTools.com	Y-1	outboard uController firmware	NO*	not protected
V-Carve Pro CAD/CAM Software	Commercial design software provided with all ShopBots	from Vectric.com	---			
Software in Development						
Control Firmware (in dev; for legacy ShopBot App above)	uC software; ATSAM3X8E (DUE)	GitHub, tba	Yes	outboard processor firmware	Yes	tbd
Control Firmware (in dev; for open source project**)	uC software; ATSAM3X8E (DUE)	Github, tba	Yes	outboard processor firmware	Yes	tbd
Example CNC PC applications	PC application code samples	tba	Yes	interface app examples	Yes	Public, not protected
Example mobile device applications	Mobile device code samples	tba	Yes	interface app examples	Yes	Public, not protected
Hardware						
Our ShopBot CNC Tools	mechanicals	var. 3D Warehouse	Yes	drawings	not supported	Public, not protected
Handibot Smart Tool	mechanicals	GitHub, tba	Yes	models & CNC files	Yes	tbd
Handibot Smart Tool	electricals/electronics	GitHub, tba	Yes	schematics, specs, etc	Yes	tbd
CNC Control Boxes	electricals	ShopBotTools.com	Yes	schematics, specs	not supported	not protected
CNC Interfaces	electronics	ShopBotTools.com	Yes	schematics, specs	not supported	not protected
Current Ver 2.xx Control Cards	electronics	ShopBotTools.com	Yes	pinouts, schematics	not supported	not protected
Next gen Control Cards	electronics	ShopBotTools.com	Yes	ALL, ATSAM3X8E (~Arduino DUE)	Yes	tbd
Production						
Distributed MFG System	mfg community	100kGarages.com	Yes	digital fab resources and network	Yes***	see site info
Education						
Open digital fab resources	education community	100kSchools.org	Yes	for teachers and educators	Yes***	Public, not protected

Y-1 Current ShopBot Software is always free to download and may be run in Preview Mode on any Windows PC; but, its usefullness requires a connected ShopBot.