

Florida State University Office of Commercialization

The Office of Commercialization is responsible for the evaluation, protection, and commercialization of novel innovations and discoveries developed by FSU faculty and staff for the benefit of the University, the state of Florida, and ultimately...the world. We help to further enhance innovations and discoveries by bridging the gap between FSU researchers, their discoveries, and introductions into industry relationships. We also provide research opportunities and services to faculty and staff through stewardship of the technology transfer process from research conception to market.



Intellectual Property Protection

- Intellectual property is any product of the human intellect that the law protects from unauthorized use by others
- IP is traditionally comprised of four categories:
 1. Patent - Exclusive right granted for an invention (product or a process) that provides a new way of doing something, or offers a technical solution to a problem
 2. Copyright - Protects an author's work (books, poems, plays, songs, films, artwork, and most software)
 3. Trademark - A word, phrase, symbol, or design, or a combination thereof, that identifies and distinguishes the source of the goods of one party from those of others (Service mark is the same for sources of services)
 4. Know-How - Information within owner's control that is not disclosed, acquired, or used by others without consent

Patents

- America Invents Act (2013) - Awards a patent to the applicant who files the patent application first, **not** to the first to invent something
- Provisional application - Filed to gauge marketability (one year)
- **Utility patent** - For the invention of a unique process, machine, article of manufacture, composition of matter, or an improvement of any of these
- To be patentable, an invention must be **novel, nonobvious, useful**, adequately described, and claimed in clear, definite terms
- Duration - Granted for **20 years** from the date the patent application is filed

U.S. Utility Patents

The invention must be:

- A unique device, method, composition, or process
- **Novelty** - An invention is not new and therefore not patentable if it was known to the public before the filing date of the patent application; this requirement is to prevent **prior art** from being patented again
- **Nonobvious** - Subject matter and the prior art are such that the subject matter as a whole would have been obvious to a person having ordinary skill in the art to which said subject matter pertains
- **Useful** – An invention is useful if it provides some identifiable benefit and is capable of use
- Adequately described
- Claimed in clear, definite terms



US011016452B2

(12) **United States Patent**
Steurer et al.

(10) **Patent No.:** **US 11,016,452 B2**
(45) **Date of Patent:** **May 25, 2021**

(54) **INTERFACE FOR POWER SYSTEMS**

(71) Applicant: **The Florida State University Research Foundation, Inc.**, Tallahassee, FL (US)
(72) Inventors: **Michael Steurer**, Crawfordville, FL (US); **Karl Schoder**, Crawfordville, FL (US); **Mark Stanovich**, Crawfordville, FL (US); **James Langston**, Crawfordville, FL (US)

(73) Assignee: **The Florida State University Research Foundation, Inc.**, Tallahassee, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 63 days.

(21) Appl. No.: **16/280,711**

(22) Filed: **Feb. 20, 2019**

(65) **Prior Publication Data**
US 2019/0258211 A1 Aug. 22, 2019

Related U.S. Application Data
(60) Provisional application No. 62/632,617, filed on Feb. 20, 2018.

(51) **Int. Cl.**
G05B 17/02 (2006.01)
(52) **U.S. Cl.**
CPC **G05B 17/02** (2013.01)
(58) **Field of Classification Search**
CPC G05B 17/02; G05B 19/0423; G05B 2219/23446
See application file for complete search history.

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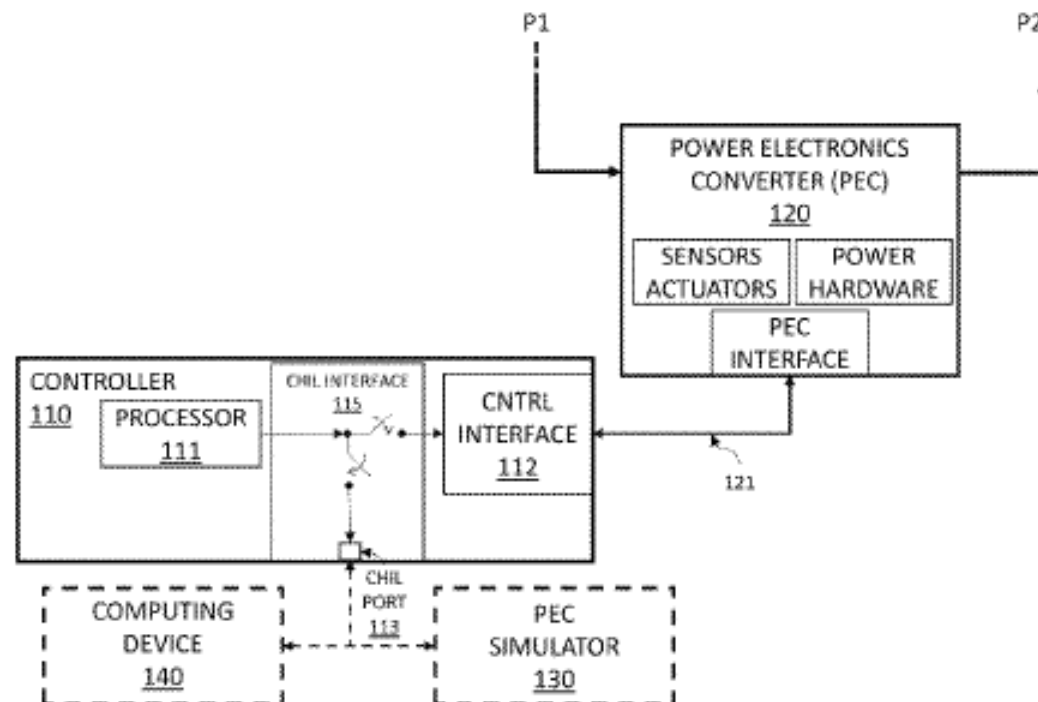
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(57) **ABSTRACT**

A controller hardware in the loop (CHIL) interface is disclosed. The CHIL interface comprises software and hardware that redirects a signal flow, including modulation signals and measurements exchanged between controller logic and a power electronics converter (PEC), to a CHIL port. Accordingly, the CHIL port provides access to the controller's logic, at a digital level, throughout phases of the controller's lifetime (i.e., design, installation, maintenance, upgrade). Thus, the CHIL interface facilitates the use of PEC simulators for testing. The CHIL interface can detach the actual PEC from the control logic so testing can be performed with or without an operating PEC and can avoid the need for dedicated and error prone signal conditioning circuitry that is external to the controller.

10 Claims, 2 Drawing Sheets



Not Patentable

- Laws of nature
- Physical phenomena
- Abstract ideas
- Inventions that are:
 - Not useful (perpetual motion machine)
 - Offensive to public morality (is there anything offensive nowadays?)
- Copyrightable material (literary, dramatic, musical, artistic, etc.)
- Most software code (copyright protected)

Inventor(s) vs. Owner

- Inventor(s) - The person or persons who contribute to the claims of a patentable invention and reduces it to practice
- Owner – The person or entity that files the patent application
 - Individual (not associated with any employer)
 - University (per employment contract and collective bargaining agreement)
 - Employer (usually claim ownership if employee discovers something at work)

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U.S. Copyrights

- Copyright Act of 1976- Copyright owner has exclusive right to reproduce the work, prepare derivative works, distribute copies, and perform/ display the work
- Protection of a form of expression such as:
 - Educational content
 - Computer code
 - Books/ graphic novels
- Duration - Granted for the **life of the author plus 70 years**

Author(s) vs. Owner

- Author(s) - The person or persons who actually write or create what is copyrighted
- Owner – The person or entity that files the copyright
 - Individual (not associated with any employer)
 - University (per employment contract and collective bargaining agreement)
 - Employer (usually claim ownership if employee discovers something at work)

Know-How

- Know-how is intellectual property that cannot be patented or copyrighted, or has other barriers that hinder copying or reproduction by a third party
- Know-how is *not* protected under US law, and is only protected as much as it is not publicly disclosed – potentially forever
- *Trade Secrets* are a specific type of know-how where the holder takes active steps to prevent public disclosure of the information – FSU rarely, if ever, attempts to protect and license trade secrets
- Examples of know-how that FSU will license include antibodies, research notes, software source code, and the knowledge to successfully enable licensed patents or copyrights

Office of Commercialization

- Evaluate disclosures and inventions, and determine if the IP should be protected by patent/ copyright
- Determine whether the IP can be marketed to industry for further development (sponsored research)
- License IP out to industry for royalties, recognition, collaboration, and for the public good (goal)
- Patent prosecution - the interaction between researchers, the IP manager, attorneys, and the patent office (USPTO) regarding IP protection
 - Pre-grant prosecution –arguing/ negotiating with a patent examiner to grant patent and amendments if necessary
 - Post-grant prosecution - maintenance and oppositions
- Copyright filing- the interaction between authors, IP manager, and attorneys
- Sometimes involved with litigation relating to infringement of IP

Inventors' and Authors' Role

- To turn ideas into well-protected and marketable innovations, we need your help
- As an FSU employee / inventor you are asked to:
 - Complete an invention disclosure form and provide supporting publications
 - Not risk losing patent rights by discussing the invention with anyone outside your department
 - Examples: conferences, submitted papers, presentations, external discussions
- Work with us to identify companies and people who could be potential licensees
- Studies show that 70% of licensees were known to the inventor/ author *
- Review the patent application and any office-actions from the USPTO
- Aid in transferring content for copyright filing
- Occasionally, meet potential licensees/ investors if time allows (we do most of this)
- While many steps require active participation, we are sensitive to your valuable time
- Each invention has its own challenges, and your active input and participation will be a big part of FSU's success

* Duke University - Office of Licensing & Ventures

Why Disclose

- The disclosure serves as a full description of the technology, and helps us to discover any prior art in order to determine IP protection
- Disclosures also provide key information concerning potential applications of the technology (its utility)
- Research and consulting relationships are helpful in identifying potential licensees within private companies
- Valuable intellectual property can be lost if it is revealed to the public before protection is sought if in a printed publication, online, poster presentation, offered for sale, or otherwise available to the public

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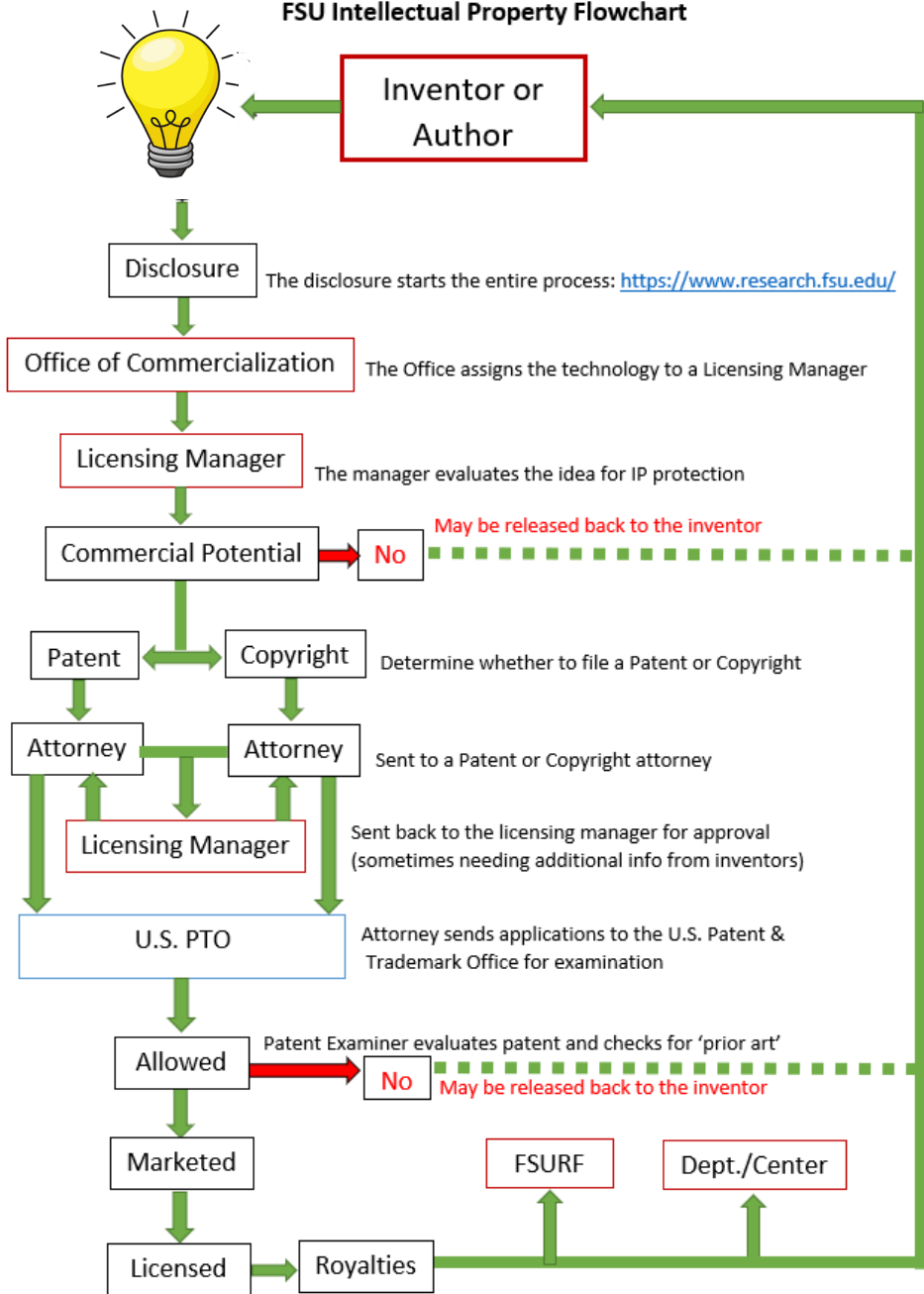
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FSU Intellectual Property Flowchart



Fast Start Program

The Fast Start program simplifies the startup process by establishing clear, fair, and standardized deal terms for FSU startups. [For more information.](#)

Questions?

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