Intellectual Property
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Agenda

• Types of IP
• Patents
  a. Types
  b. Requirements
  c. Anatomy
  d. New US patent law
• About Office for Technology Commercialization
  a. Process for students
Intellectual Property (IP)

• Intellectual property refers to creations of the mind
  a. Rights given to intangible assets

<table>
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<th>Asset</th>
<th>Rights</th>
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<tr>
<td>inventions</td>
<td>Patents, Trade Secrets</td>
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<tr>
<td>literary, artistic works, <strong>software</strong> and drawings</td>
<td>Copyrights</td>
</tr>
<tr>
<td>symbols, names, images and designs used in commerce</td>
<td>Trademarks</td>
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Honeycrisp Apple
A University of Minnesota Innovation

Is the Honeycrisp IP?
How is the Honeycrisp Protected?

- Patent
- Copyright
- Trademark
- Trade secret
Copyright

• Set of rights in an original work of authorship
  a. Fixed in a tangible medium of expression
• Protects expression and not idea
• No special action required to obtain copyright
• Protects against unauthorized copying
  a. Does not protect against independent development
Trademark

• Word, name, symbol or device
• Used in commerce to identify the source of goods (or services)
  a. Words
  b. Colors (e.g. pink for Owens Corning building insulation)
  c. Shape of product (e.g. the Coke bottle)
  d. Sounds / smells
  e. Animated characters
Trade Secret

• Confidential information
  a. Protects ideas, methods, and other information

• Elements:
  a. Derives economic value or provide a competitive advantage
  b. Not generally known to others
  c. Steps are taken to maintain secrecy

• Examples
  a. Formula for Coca-Cola
  b. Manufacturing processes
Trade Secret Protection

**PROS**

- Duration can be infinite
- No federal registration required

**CONS**

- Duration can be finite
- Reverse engineering
- If a 3rd party (independently) gets a patent on your trade secret, you can be prevented from using your trade secret
Is your **Design Notebook** IP?

How is it protected?

COPYRIGHT
Patent

- **Property** rights granted by the government to an inventor
  
  a. Requires full disclosure of invention

- The right to **exclude** others from making, using, offering for sale, selling or importing the invention
Types of Patents

• **Plant patents** – protects any new and distinct variety of plant that has been invented or discovered and asexually reproduced
  a. Term: 20 years from the date the application is filed

• **Design patents** – protects ornamental appearance of an article
  a. Term: 14 years from the grant date

• **Utility patents** – protects utility of articles
  a. Term: 20 years from the date the application is filed
Design Patent Example

**CLAIM**

We claim the ornamental design for a media player, as shown and described.

**DESCRIPTION**


FIG. 1 is a front perspective view of a media player showing our new design;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a left side view thereof;

FIG. 4 is a right side view thereof;

FIG. 5 is a bottom view thereof;

FIG. 6 is a top view thereof, and;

FIG. 7 is a rear elevational view thereof.

The broken lines show portions of the media player which form no part of the claimed design.
Utility Patent

• Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent (35 U.S.C. § 101)
Utility Patent

• Elements for patentability
  a. Useful (utility)
  b. New (novel)
  c. Non-obvious
Utility

• Must have some real-world use
• Must not be harmful to society
• Must not violate laws of physics and nature

• Ideas found to violate the utility requirement:
  a. Perpetual motion machine
  b. Method of controlling the aging process
  c. Illegal or highly dangerous products
Novelty

• Was not previously known, sold or used by others anywhere in the world

• Determined by searching literature, patent databases, web, etc.
Non-Obviousness

• Higher hurdle than the novelty and utility requirements

• Invention could not be readily deduced from publicly available information
  a. Combination or modification of one or more references that make the claimed invention obvious

• A “Surprising and unexpected” result
Is it Patentable?

• If you change a rivet to a screw in a device?

Probably not patentable
Anatomy of a Patent

• Front Page
  b. Title
  c. Inventors
  d. Filing Date
  e. Abstract

• Drawings
• Background
• Description of Drawings
• Detailed Description
• Claims
An apparatus includes semiconductor processing equipment. A particle detection system is positioned in a vacuum environment, the particle detection system containing a device having a pair of conductive lines exposed to the vacuum environment. The pair of conductive lines is spaced at a critical pitch corresponding to diameters of particles of interest. A computer system is linked to the particle detection system to detect a change in an electrical property of the conductive lines when a particle becomes lodged between or on the lines.
Drawings
Written Description

- **Background** states what is currently known in the art

- **Detailed Description** must enable “one of skill in the art” to practice (e.g., make, use, etc.) the invention

- **Description of Drawings**
Claims

• Scope of the invention is determined by the breadth of the claims

• Include a list of elements or steps

• Written as a single sentence

What is claimed is:
1. An apparatus comprising:
a vacuum chamber containing a particle detecting integrated circuit, the particle detecting integrated circuit including a plurality of devices, each of the plurality of devices including a pair of conductive lines that are configured to define a channel to capture at least one particle having an associated diameter, the pair of conductive lines of each of the plurality of devices includes a uniform pitch representing a single particle size between pairs of the conductive lines of the plurality of devices;
wherein the pairs of the conductive lines of the plurality of devices are further configured to enable a change in capacitance of one of the pairs of conductive lines of the plurality of devices when a non-metallic particle is lodged on or between the one of the pairs of the conductive lines of the plurality of devices.
Types of Claims

• **Independent** claim
  1.) A device comprising:
      
      element A;
      
      element B;
      
      element C; and
      
      element D.

• **Dependent** claim
  2.) The device of claim 1, further comprising element E.
Patent Claims

Independent Claim

5. An apparatus comprising:
a mask stage in a vacuum chamber of semiconductor processing equipment;
a particle detecting integrated circuit embedded in the mask stage, the particle detecting integrated circuit comprising a plurality of devices, each of the plurality of devices having a pair of conductive lines exposed to a local vacuum environment, the pair of conductive lines are configured to define a channel to capture at least one particle having an associated diameter, the pair of conductive lines of each of the plurality of devices having a uniform pitch representing a single particle size;
wherein the pairs of conductive lines of the plurality of devices are further configured to enable a change in capacitance of one of the pairs of conductive lines of the plurality of devices when a non-metallic particle is lodged on or between the one of the pairs of the conductive lines of the plurality of devices.

6. The apparatus of claim 5 wherein the pair of conductive lines of each of the plurality of devices is configured to receive an applied voltage.

7. The apparatus of claim 5 further comprising a computer system linked to the particle detecting integrated circuit.
Patenting Deadlines

Discovery

Make Idea Publicly Known
“Public Disclosure”
(Day zero)

1 Year

Foreign Rights
No Patent Rights

US Rights
No Patent Rights

Grace Period*

* Beginning March 2013 new US law will impact Grace Period.
US Patent Law Changes

• Leahy-Smith America Invents Act (AIA)
• Signed into law on September 16, 2011
• Most significant change to the U.S. patent system since 1952
• March 16, 2013 – Become a "First-Inventor-to-File (FITF)" system
  a. Prior to AIA, US was "first-to-invent" system
Patent Costs

• Patent protection is expensive
  a. $3-10,000+ (U.S. application)
  b. $25-30,000+ (U.S. lifetime cost)
  c. $Millions for global rights
Patent Searching

- Google Patents (google.com/patents)
  a. Does not include all patents
  b. Google does not update frequently

- US Patent Office (uspto.gov)
  a. Not very user friendly but issued patents and published patent applications can be searched

- European Patent Office (ep.espacenet.com)
  a. Provides US and foreign patents
Office for Technology Commercialization

• **Mission**: commercialize innovations developed at the U when it is useful for society and will provide a reasonable return on investment

  a. Identification of innovations
  b. Thorough market assessments
  c. Protection (patent, copyright, trademark)
  d. Licensing
  e. New start-up companies
U Commercialized Inventions

Honeycrisp Apple

Flight Data Recorder (Black Box)

Autoscope

Gentle Leader
Tech Commercialization Simplified

1. **Develop**
   Faculty, students and staff develop new IP

2. **Protect**
   File patent application or copyright asset

3. **License**
   License IP to existing company or start new company

4. **Product**
   Company develops and sells product

5. **Income**
   Company pays U royalty
OTC Generates Revenue for U

Results for FY2011

- Inventions Disclosed: 250
- Patents Filed: 78
- New Licenses: 76
- New Startups: 9

$10 million gross revenues

Funds further research, innovation, scholarships
IP Policy

The University is sole owner of all IP...

- created by University employees in the course of their employment;
- created by students or post-doctoral or other fellows in the course of their academic duties or appointments; or
- created by individuals, including employees, students, or post-doctoral or other fellows, using substantial University resources.
Reporting New IP to OTC

• If IP is protectable and has commercial potential...

• Complete the IP disclosure form to initiate the OTC evaluation

• Download form from OTC website

www.research.umn.edu/techcomm/
Technology Selection

• Technologies are evaluated based upon:
  a. Commercial potential
     • Solves a known problem (unmet need)
     • Market size
     • Market growth rate
  b. Ability to protect the IP (usually by patent)

Technologies must be protectable, and have a reasonable commercial potential with expected returns on investment
Questions?

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