THE SIMPLE GUIDE TO UNDERSTANDING PATENTS

NUS Libraries
(Patent Resource Team)
Industry Liaison Office

25 September 2017
10am – 12noon
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Programme Outline

- Introduction to Patents
- Brief Overview of Patent Filing in NUS
- Patent Searching
  - Internet Sources
  - Patsnap
  - How to Read a Patent Document
Introduction & Brief Overview of Patent Filing in NUS

MR. HAUJIUN CHEN
MANAGER
INDUSTRY LIAISON OFFICE
Outline

- Intellectual Properties
  - Overview
  - Alternatives besides patents
- What to do?
  - Things to know
  - Best time to approach ILO
- Challenges
  - Time commitment
  - Difficulties that researchers usually face
What is Intellectual Property?

“Intellectual property (IP) refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.”


- IP protected in law - patents (utility and design), copyright, IC layout design and trademarks
- Trade-secret, know-how
Overview

WHAT PROTECTION PATENT OFFERS?

- It does give you the right to exclude others from doing so.
- During the time a patent is in place, a patent holder or licensee can exclude competitors from making and selling products similar to the patented idea of invention.
- The inventor gives the public a full and complete disclosure of the invention with a teaching of how it works.

[Link to website for researchers about patents](http://enterprise.nus.edu.sg/technology-commercialisation/for-researchers/about-patents)
WHAT MAKES AN INVENTION PATENTABLE?

- **Novelty**
  - The invention must be new and original. An invention is not considered novel if it has been known, practiced, published, or disclosed by others anywhere in the world before the date the invention was filed by the applicant.

- **Utility**
  - The invention must be useful, i.e., it must have a practical application

- **Non-Obviousness**
  - The invention must not, at the time it was filed, be considered obvious to a person of “ordinary skill” in the field of the invention.

What to do? Challenges?

- **UNDERSTAND YOUR INVENTION**
  - Status of invention
  - Landscape
  - Learn to do search

- **UNDERSTAND WHY YOU ARE DOING YOUR SEARCH**
  - Scientific
  - Commercial - “White space”, defensive

- **SUBMITTING INVENTION DISCLOSURE FORM TO ILO**
  - Do your preliminary search
  - Discuss with ILO before submitting

- **PATENT PROSECUTION IS A LONG AND EXPENSIVE PROCESS**
  - Time commitment
  - Reasons to continue to maintain the patent
Patenting and Commercialization

- WHERE TO GET INVENTION DISCLOSURE FORM?
  - Please complete the document

- PROVIDE AS MUCH INFORMATION AS POSSIBLE
  - Funding sources
  - Inventors/collaborators
  - Publications or intended publication dates
  - Technical write-up of the invention
  - Leads and contacts to companies

- DUE DILIGENCE
  - Patentability
  - Commercial viability

- COMMERCIALIZATION
  - Marketing to companies
  - Licenses, research collaborations, spin-offs, etc.
Where to get it?

http://enterprise.nus.edu.sg/

"Technology Commercialisation" Tab -> Select “For Researchers”
Select “Disclosing An Invention”
Patent Journey

- **FILING PCT - WHY?**
  - Differing payment for filing national patents
  - Gestation period & Grooming start-up/spin-off Company
  - Time for additional research
  - Time to search for licensees/collaborators/investors
  - Time for marketing research

- **PATENT OFFICE ISSUES**
  - International Search Report (ISR) provides an indicator of the patentability of the patent application
  - Written Opinions (WO) provides detailed opinion on cited references/prior art against patent application from Patent Office

- **AFTER PCT – NATIONAL PHASE ENTRY**
  - Entering into individually countries
  - Not the end – office actions, renewals fees, etc
Takeaway

- TYPES OF INTELLECTUAL PROPERTIES
- UNDERSTANDING YOUR INVENTION
- UNDERSTANDING WHY YOU ARE DOING YOUR SEARCH
- NUS IP PROCESS
  - OTHER TYPES OF INTELLECTUAL PROPERTIES
- PATENT PROSECUTION IS A LONG AND EXPENSIVE PROCESS
- LAB TO MARKET IS A MARATHON
Iftikhar Hayat
Senior Librarian
Member, Patent Resource Team

PATENT SEARCHING
Patent Searching - 5W1H

1- What
2- Why
3- When
4- Where
5- How
6- Who
1- What

What are you looking for?
OR
What is the purpose of searching patent?
OR
What do you want to achieve from this session?
1- What are you looking for

Post your answer here: https://padlet.com/nuslpatent/1
Why search for patents? Is there a need?
Search: The benefits

Don’t search for patents as last part of the research process.

• To avoid duplicating research & infringement
• To investigate whether an invention is new and can be patented
• To use in business planning such as decisions on licensing, technology partnerships, mergers and acquisitions.
• To monitor the research activities of competitors
• To help identify and analyze filing trends
2.6 References: Please list literature references that most closely describe your invention. You may if desired, conduct a patent search at http://ep.espacenet.com and http://www.uspto.gov

List of references cited in this write-up.

6. COMMERCIALISATION Please identify any potential licensees or collaborators interested in the invention.

List companies or organizations, if any, that could be interested in using this invention.

Do you have plans to spin off a company based on your invention?  

Yes  No

Would you be willing to participate in the marketing of this invention by explaining it to potential commercial partners?  

Yes  No
When to search for Patents?
3- When

Search: When you need patent information
Don’t search patents as last part of the research process

• Scenario 1:

“I work in Research and Development but I’m not ready to look at patents just yet – I’m still refining my ideas.”

Should Adèle think about using patent information?

• Scenario 2:

“I’m not really interested in patent information. I’ve got a good product and it’s ready for the market, so what do I need a patent for?”

Should Chenglei consider conducting a patent search?

Yes ☐ No ☐
Search: When you need patent information

Don’t search patents as last part of the invention process

• Scenario 3:

“I’ve finished developing my invention and I’m now going straight ahead to apply for patents around the world.”

Should Samantha immediately go ahead with all her patent applications at this point in time?

☐ Yes  ☐ No

• Scenario 4:

“I’m taking over a company that has got an extensive portfolio of patents. I think it would probably be worthwhile to do a patent search.”

Would you agree or disagree with Inez?

☐ Agree  ☐ Disagree
Where to search for Patents?
Search: Types of Patent Databases

Free online
- Lens
- Google Patents
- Etc.

Country Specific
- USPTO
- IPOS
- Etc.

NUSL subscribed

Different patent databases have different content and date coverage! Make sure you choose the appropriate one!

For more information, please refer to the patent libguide!
http://libguides.nus.edu.sg/patents
How to search for patents?
How to read a patent?
5- How to search for patents?

**Known Patent Search**
- Patent No.
- Application No.
- Title
- Inventor Name
- Assignee Name

**Topic Search**
- Search by keywords identified
- Search by classification
  - US Classification (UPC)
  - International Patent Classification (IPC)
  - Cooperative Patent Classification (CPC)
  - Lorcarro Classification
Exercise #1:

- Title: Wireless pairing of earbuds and case
- Patent # US9769558B2
### 5- How

**Additional features - Lens.org**

**Structured Search**

**Date Range**

**Jurisdictions**

**Inventors**

**Owners (US)**

**Applicants**

**Cited Authors**

**Cited Articles (PubMed)**

**Cited Articles (CR)**

**Document Families**

**Classifications**

**Document Types**

**Biologicals**

**Collections**

**Query Tools**
5- How

Exercise # 2:

- Read the patent: Wireless pairing of earbuds and case
  
  &

  answer the following:

  - How do I know if this patent is an application or granted patent?
  - When is this patent granted? What is the date of grant?
  - When is this patent filed? Where is this patent filed? Is this patent also filed in other countries?
  - How can I find similar patents?
A case for a pair of wireless earbuds includes a lid and a lid sensor configured to generate a detect signal when the lid is moved from a closed position to an open position. The case further includes circuitry configured to, in response to receiving the detect signal, send a signal to the wireless earbuds to turn them on and to initiate a pairing sequence between the wireless earbuds and an electronic device.
What is claimed is:

1. A case for a pair of wireless earbuds having a wireless radio, the case comprising:
   a housing having a first cavity configured to receive a first earbud in the pair of wireless earbuds and a second cavity configured to receive a second earbud in the pair of wireless earbuds;
   a lid attached to the housing and opening closed position where the lid contains wireless earbuds within the case and that allows a user to remove the pair of earbuds from the case;
   a connector configured to couple to each of the second earbuds, the connector included positioned in the first cavity and positioned in the second cavity;

References Cited

U.S. PATENT DOCUMENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Issue Date</th>
<th>Inventor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,610,494 A</td>
<td>3/1997</td>
<td>Grosfilley</td>
</tr>
<tr>
<td>6,190,203 B1</td>
<td>2/2001</td>
<td>Murakami et al.</td>
</tr>
<tr>
<td>6,310,960 B1</td>
<td>10/2001</td>
<td>Passerini et al.</td>
</tr>
<tr>
<td>6,519,448 B1</td>
<td>2/2003</td>
<td>Dress et al.</td>
</tr>
<tr>
<td>6,658,124 B1</td>
<td>12/2003</td>
<td>Meadows</td>
</tr>
<tr>
<td>D529,288 S</td>
<td>10/2006</td>
<td>Ham</td>
</tr>
<tr>
<td>7,775,675 B2</td>
<td>8/2010</td>
<td>Hamm et al.</td>
</tr>
<tr>
<td>8,009,001 B1</td>
<td>8/2011</td>
<td>Cleveland et al.</td>
</tr>
<tr>
<td>8,009,002 B2</td>
<td>8/2011</td>
<td>Fiedler</td>
</tr>
<tr>
<td>8,126,177 B2</td>
<td>2/2012</td>
<td>Jensen et al.</td>
</tr>
<tr>
<td>8,170,623 B2</td>
<td>5/2012</td>
<td>Dorogusker et al.</td>
</tr>
<tr>
<td>8,180,093 B2</td>
<td>5/2012</td>
<td>Hankey et al.</td>
</tr>
<tr>
<td>8,181,233 B2</td>
<td>5/2012</td>
<td>Wyld</td>
</tr>
</tbody>
</table>
Before search-Brainstorm

- What is your idea, write down all the words you can think of that describe your invention. Keep the following questions in mind:
  - What does the invention do?
  - What is the end result?
  - How does it work?
  - What is it made of?
  - What is it used for?
  - What problem(s) does it solve?
5- How

Topic Search - Examples

Topic 1

- Wireless earbuds or wireless headphones is an electronic device that can be worn by a user. It can include a processing unit and one or more sensors operatively connected to the processing unit. I am interested to find any patents on Wireless earbuds or wireless headsets.

Topic 2

- A motion sensor is a device that detects moving objects. I am interested to find any patents on use of sensors in autonomous vehicles.
5- How

Information Search Process

| Identify Keywords | • Motion Sensors   | | Select Sources | • Free Databases e.g. Lens, Google patents | | Construct Search Statement | • Narrow/broaden | | Satisfied with Results? | change one or more |
|------------------|-------------------|---|------------------|---------------------------------|---|-----------------------|-----------------|---|----------------------|
|                  | • Sensors         | |                 | • Country specific e.g. IPOS, USPTO | |                       | • Advanced Search Techniques | |                     |                          |
|                  | • Autonomous vehicles | |                 | • Subscribed Databases e.g. Patsnap | |                       |                               | |                     |                          |

Set Alerts

Access Full Text
# Basic Search

<table>
<thead>
<tr>
<th>Operators</th>
<th>Used for</th>
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<tbody>
<tr>
<td>AND</td>
<td>To combine different keywords/concepts</td>
</tr>
<tr>
<td>OR</td>
<td>To combine synonyms/alternative terms or similar keywords</td>
</tr>
<tr>
<td>&quot;&quot;&quot;</td>
<td>Quotes for Phrases (more than one word)</td>
</tr>
<tr>
<td>*</td>
<td>Truncation to retrieve word variants.</td>
</tr>
</tbody>
</table>

Exercise # 3
To kick start - You have 5 minutes

1. Select a Topic from above or Use your own topic.
   – Identify Keywords/ concepts

2. Go to NUS Libraries portal
   [http://www.lib.nus.edu.sg](http://www.lib.nus.edu.sg)

3. Login to Patsnap

4. Do a search
5- How

To refine/ To improve:

http://analytics.patsnap.com.libproxy1.nus.edu.sg/visual?q=%28%28TAC%3A%28%22motion+sensor%22+Or+sensors%29+AND+%22autonomous+vehicles%22%29%29%29#/

1,657 patents

Select relevant keywords

Global Frame  Dialysis Machine  Dynamic Object  Model of the Driver

Directional Component  Autonome Fahrzeug  User Input  Leading Edge

Steering Column  Autonomous Mode  Sensor Field  Managing

Illustrative Embodiments  Semi-autonomous Vehicle  Control Unit  Parking

Road Segment  Control System  Detected Object  Number of Cradle Fixtures

Vehicle Transportation Network  Potential  Information Reports  자율 주행 차량의

Vehilce Body  Approach  Sensor Anomaly  Heading Angle

Driving Route  Prior Map  Sensing Means  Range Scans

Inertial Measurements

About this chart
5- How

To:

1-20 records, 1,657 records in total

Overview

Application Trend

Top IPC

Top Assignee(s)

Top Authorities

Top CPC

Patent Type

1-20 records, 1,657 records in total

Copy full search query

Copy full search query
To refine: Cited by count

<table>
<thead>
<tr>
<th>#</th>
<th>Publication Number</th>
<th>Title</th>
<th>Assignee Name</th>
<th>Inventor Name</th>
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<tbody>
<tr>
<td>1</td>
<td>US5130794</td>
<td>Panoramic display system</td>
<td>RITCHLEY, KURTIS J.</td>
<td>RITCHLEY, KURTIS J.</td>
</tr>
<tr>
<td>2</td>
<td>US6151539</td>
<td>Autonomous vehicle arrangement and method for controlling an autonomous vehicle</td>
<td>VOLKSWAGEN AG</td>
<td>BERGHOHL, RALF TIMM, KLAUS WEISSER, HUBERT</td>
</tr>
<tr>
<td>3</td>
<td>US5204814</td>
<td>Autonomous lawn mower</td>
<td>MOBOT, INC.</td>
<td>NOONAN, THOMAS H. FISHER, JOHN BRYANT, BARRY</td>
</tr>
<tr>
<td>4</td>
<td>US5170352</td>
<td>Multi-purpose autonomous vehicle with path plotting</td>
<td>FMC CORPORATION</td>
<td>MCTAMANEY, LOUIS S. WONG, YUE M. CHANDRA, RAGHASAMI +5</td>
</tr>
<tr>
<td>5</td>
<td>US6199000</td>
<td>Methods and apparatus for precision agriculture operations utilizing real time</td>
<td>TRIMBLE NAVIGATION</td>
<td>KELLER, RUSSELL J. NICHOLS, MARK E.</td>
</tr>
</tbody>
</table>
5- How

To look at the Citation map of a patent
To Save:

5- How
To export:

1. Export Number
   - Selected patent records (0 patent(s))
   - From 1 to 500 (A total of 1,657 records)

2. Export Format
   - XLS
   - PDF
   - RTF
   - XML
   - CSV

3. Export Fields
   - Key Fields only
   - Fields:
     - Publication Number, Title, Application Date, Publication Date, Inventor Name, Assignee Name, IPC
   - Include thumbnail
   - Any languages (default)
Is there anything missing?
Who is eligible to file patents?
Who to contact if you are searching for patents?
Who to contact if you are planning to file a patent?
Who grants patents? Refer to:
http://www.wipo.int/patents/en/faq_patents.html#accordion_collapse_10
Your feedback is important to us: [j.mp/RU_Feedback]

For Queries on Patent: Contact Us: askalib@nus.edu.sg

Thank You 😊

Iftikhar Hayat
Patent Resource Team, NUS Libraries
References:

Patent Subject Guide:
• [http://libguides.nus.edu.sg/patents](http://libguides.nus.edu.sg/patents)

Industry Liaison Office. Information for researchers
• [http://enterprise.nus.edu.sg/technology-commercialisation/for-researchers](http://enterprise.nus.edu.sg/technology-commercialisation/for-researchers)

Useful links:

Patent Databases:
• [Patsnap](http://www.patsnap.com)
• [Lens.org](http://www.lens.org)
• [Google Patents](http://www.google patents.com)
• [USPTO](http://www.uspto.gov)
• [IPOS](http://www.ipos.gov.sg)