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IP Professionals

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*Securing and Enforcing Intellectual Property Rights for  
IoT and IoS Innovations*

IEEE Internet of Things Summit 20-21 January 2019

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# Overview

- **Introduction to U.S. Intellectual Property Rights**
  - What is Intellectual Property (IP)?
  - IP Rights and Forms of Protection
- **Patenting and Enforcement of IoT and IoS Innovations**
  - IoT Patent Statistics and Trends
  - Where can I enforce a U.S. Patent?
  - Inventors
- **Implementing an IP Strategy (Example)**



# What is Intellectual Property (IP)?

# What is Intellectual Property (IP)?

1. “**property**” – refers to tangible things (real/personal) with rights/interests owned by a person or entity – tangible assets
2. “**intellectual property**” – refers to creations of the mind for which a set of rights are recognized under the applicable laws – intangible assets

# Types of Intellectual Property

## ▪ Patents

- Process
- Device or System
- Improvement
- Composition of Matter

## ▪ Copyrights

- Creative Design
- Original Text
- Source code
- Artwork

## ▪ Trademarks

- Brand
- Symbol

## ▪ Trade Secrets

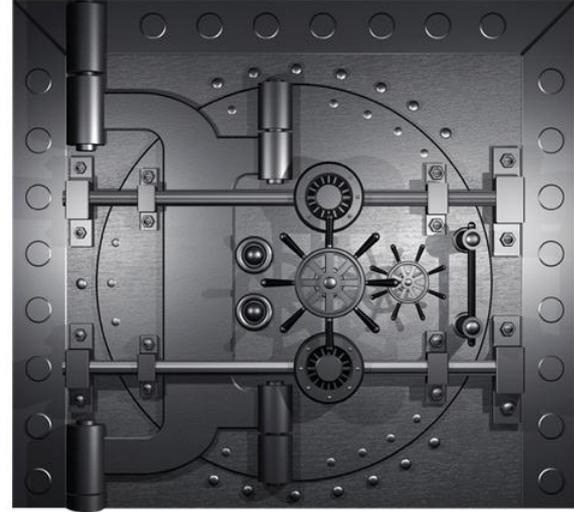
- Algorithm
- Formula
- Source code



# IP Rights and Forms of Protection

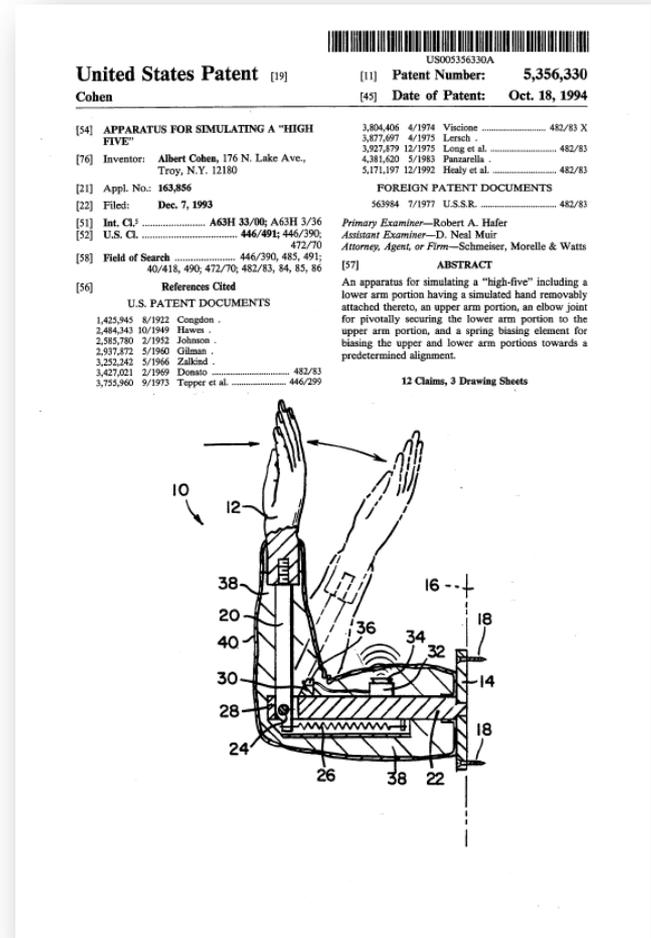
# Intellectual Property Provides Protection

- At their core, IP rights are the right to **exclude** others from doing something
  - e.g., making, selling, labelling, performing, etc.



# What is a Patent?

- Legal document that protects ideas
- Granted to inventor and/or assignee
- Powerful form of protection
- Limited to particular region (e.g., the U.S. or Canada)
- Protects against independent development AND reverse engineering



# Parts of a Patent

## Background/Problem:

"Unfortunately, as known in the art, a 'high five' requires the mutual hand slapping of two participants .... As such, a solitary fan is unable to perform a 'high five' to express excitement during a televised sporting event."

**Description:** In operation, the lower arm portion 20 is pivotally displaced about the elbow joint 24, towards the horizontal surface 52, in response to the impact of a user's hand against the attached, simulated hand 12, and subsequently returned towards the first stop element 54 by the action of the torsional biasing spring 56.

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APPARATUS FOR SIMULATING A "HIGH FIVE"  
FIELD OF THE INVENTION  
The present invention relates to amusement and/or exercise devices and, more particularly, to a self-righting hand-arm configuration which is adapted to pivot about a joint to most effectively simulate a "high five."  
BACKGROUND OF THE INVENTION  
During a televised sporting event, a "high five" is commonly shared between fans to express the joy and excitement of a touchdown, home run, game-winning strike, hole-in-one or other positive occurrence. Unfortunately, as known in the art, a "high five" requires the mutual hand slapping of two participants, whereas a fan desiring to express excitement during the televised event is unable to perform a "high five" to express excitement during a televised sporting event.  
SUMMARY OF THE INVENTION  
In order to avoid the disadvantages of the prior art, the present invention provides a portable, self-righting hand-arm configuration for simulating a "high five."  
The hand-arm configuration of the present invention generally comprises a lower arm portion for simulating the forearm of a human, an upper arm portion for simulating a first and second portion of the lower arm portion of a first participant of the art, the hand-arm configuration including a hinging element, such as a spring or the like, for biasing the upper and lower arm portions towards a predetermined 10 alignment, a simulated hand, removably attached to an upper portion of the lower arm portion, and a mounting arrangement for securing the hand-arm configuration to a supporting structure such as a table, wall, floor or the like.  
In accordance with a first embodiment of the present invention, the lower and upper arm portions of the hand-arm configuration are maintained in a prepositionally disposed relationship, with the lower arm portion and the attached, simulated hand, extending vertically 15 upwards from a horizontally projecting upper arm portion. More specifically, the lower arm portion is adapted to pivot about the elbow joint and the upper arm portion is pivotally connected to the lower arm portion with a suitably disposed pivot stop element. In operation, the lower arm portion is adapted to pivotally displace towards the horizontally projecting 20 upper arm portion in response to the impact of a user's hand against the attached, simulated hand. As the force of the impact is counteracted by the opposing force of the hinging element, the lower arm portion is substantially returned to its original, vertically extended position against the pivot stop element.  
In a second embodiment of the present invention, the lower and upper arm portions of the hand-arm configuration are maintained in a vertically aligned, linear relationship. The lower and upper arm portions are pivotally connected by an elbow joint, and a hinging element is adapted to counteract the lower arm portion in an upward direction about the elbow joint until the 25 lower and upper arm portions are vertically aligned. Again, as in the first embodiment of the present invention, the elbow joint is provided with a suitably disposed pivot stop element to prevent the lower arm portion from pivoting past vertical in response to the impact of a user's hand against the attached, simulated hand. The lower arm portion is provided about the elbow joint, and subsequently returned to its original, vertical orientation against the pivot stop element by the opposing force of the hinging element.  
As described above, the hand-arm configuration of the invention allows a user to simulate a "high five" in celebration of a positive event, thereby providing the user with a convenient outlet for the release of excitement. Further, the hand-arm configuration specifically improves the hand-eye coordination of a user and/or, depending upon specific configurations, provides an exercise device for enhancing the jumping ability of a user. More specifically, when the hand-arm configuration is mounted at a sufficient height above the normal reach of a user, the user must jump upwards to strike the simulated hand.  
The exercise device is preferably constructed of lightweight materials commonly practiced by basketball players. As such, the weight and construction of a user can be improved through the practice of the present invention.  
The upper and lower arm portions of the hand-arm configuration are preferably covered with a layer of padding to more closely emulate the shape of a human arm. The padding may be rendered by an appropriately colored, simulated skin layer formed of any suitable material such as rubber or plastic, and/or may be striped with an outer, shear alert device. Preferably, the alert device is suitably oriented to represent a professional or amateur sports team, and include a number or other indicia feature representative of a specific player on a sports team.  
The exercise device is preferably simulated hand is 35 preferably formed of a suitable plastic or rubber material to be the shape of an average size human hand, although oversized and other novelty hands may be simulated. To further represent a specific player on a sports team, the simulated hand may be an actual replica of the player's hand.  
The present invention may further incorporate a sound system, comprising a mechanical, battery operated sound generator and speaker, for producing a predetermined or user selectable sound in response to the striking of the simulated hand. A variety of ring tones may be provided, including the choice of a record or the voice of a specific player, which is utilized in conjunction with the sound system, the present invention may further include a light or other visual system, for outputting a visual signal in response to the striking of the simulated hand.  
BRIEF DESCRIPTION OF THE DRAWINGS  
These and other features of the present invention will become more fully apparent upon reading the following detailed description and upon reference to the drawings, in which:  
FIG. 1 is a perspective view of a portable, self-righting hand-arm configuration for simulating a "high five" which strikes by the hand of a user, in accordance with a first embodiment of the present invention;

# Drawings

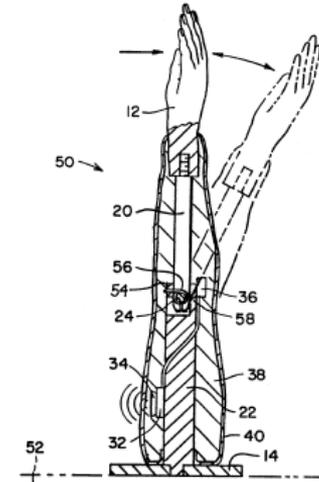


FIG. 5

# Parts of a Patent

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5,356,330

FIG. 2 is a front view of the hand-arm configuration of FIG. 1.  
FIG. 3 is a side view of the hand-arm configuration of FIG. 1.  
FIG. 4 is a side cross-sectional view of the hand-arm configuration; and  
FIG. 5 is a side cross-sectional view of a hand-arm configuration in accordance with a second embodiment of the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

Referring now specifically to the drawings, there is illustrated a hand-arm configuration for simulating a "high five" was struck by a user, wherein like reference numerals refer to like components throughout the drawings.

A first embodiment of the hand-arm configuration, generally designated as 10, is illustrated in FIGS. 1-4. More specifically, the hand-arm configuration 10 includes a simulated hand 12 which is removably securable to a perpendicularly oriented, arm system. A mounting arrangement 14 is provided to secure the hand-arm configuration 10 to a vertical surface 16 such as a wall or the like. Screws 18, or other suitable fasteners, are utilized to fixly secure the mounting arrangement and attached hand-arm configuration 10 to the vertical surface 16. The hand-arm configuration 10 may be formed integrally with the mounting arrangement 14, or may be removably secured thereto.

Referring now specifically to FIG. 4, there is illustrated a side cross-sectional view of the hand-arm configuration 10. The hand-arm configuration 10 generally comprises a lower arm portion 20 for simulating a human forearm, an upper arm portion 22 for simulating the upper arm of a human, and an elbow joint 24 for pivotally joining the lower arm portion 20 and the upper arm portion 22. A biasing spring 26 is utilized to bias the lower arm portion 20 towards and against a first stop element 28. As illustrated, the biasing spring 26 and the first stop element 28 are adapted to collectively maintain the lower arm portion 20 and attached, simulated hand 12 in a vertical orientation, perpendicular to the horizontally projecting upper arm portion 22.

When the simulated hand 12 is struck by a user, the lower arm portion 20 is adapted to pivot about the elbow joint 24 towards the upper arm portion 22, thereby simultaneously elongating the biasing spring 26. Thereafter, the lower arm portion 20 is directed towards its original, vertical position against the first stop member 28 by the expansive force of the biasing spring 26. A second stop element 30, preferably having a beveled front surface, may be provided to limit the pivorable displacement of the lower arm portion 20 towards the upper arm portion 22.

A sound system, comprising a miniaturized, battery operated sound generator 32, speaker 34 and switch 36 is utilized to output a predetermined sound in response to a user actuated displacement of the lower arm portion 20. Preferably, the switch 36 is activated when the lower arm portion 20 contacts the second stop element 30.

The lower and upper arm portions 20, 22, are enclosed by a layer of padding 38 which is suitably configured to simulate a human arm. A shirt sleeve 40 is utilized to conceal the padding 38.

Referring now specifically to FIG. 5, there is illustrated a side cross-sectional view of a hand-arm configuration 50 for simulating a "high five", in accordance with a second embodiment of the present invention. As in the first embodiment of the present invention, the hand-arm configuration 50 includes a lower arm portion 20 having a simulated hand 12 removably attached thereto, an upper arm portion 22, an elbow joint 24 for pivotally joining the lower arm portion 20 and the upper arm portion 22, a mounting arrangement 14 for securing the hand-arm configuration 50 to a horizontal surface 52, a sound system comprising a miniaturized, battery operated sound generator 32, speaker 34 and switch 36, a layer of padding 38 and a shirt sleeve 40. Unlike the first embodiment, however, the lower and upper arm portions 20, 22 of the hand-arm configuration 50 are maintained in a substantially vertically aligned, linear relationship to a first stop element 54 and a torsional biasing spring 56. More specifically, the torsional biasing spring 56 is adapted to continuously bias the lower arm portion 20 towards and against the first stop member 54.

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In operation, the lower arm portion 20 is pivotally displaced about the elbow joint 24, towards the horizontal surface 52, in response to the impact of a user's hand against the attached, simulated hand 12, and subsequently returned towards the first stop element 54 by the action of the torsional biasing spring 56. A second stop element 58, again preferably including a beveled front surface for receiving the lower arm portion thereagainst, is provided to limit the pivorable displacement of the lower arm portion towards the horizontal surface 52.

The foregoing description of the preferred embodiments of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed, and obviously many modifications and variations are possible in light of the above teaching. For example, the hand-arm configuration may be suitably configured and continued to simulate the arm of an animal such as a gorilla or the like. Such modifications and variations that may be apparent to a person skilled in the art are intended to be included within the scope of the invention as defined by the accompanying claims.

1. An apparatus for simulating a "high five" comprising:  
a first, movable arm portion for simulating a forearm, said first arm portion having a simulated hand secured thereto;  
a second, immovable arm portion for simulating an upper arm;  
a mounting arrangement for mounting said second arm portion to a supporting surface;  
a pivot member for pivotally securing said first arm portion to said second arm portion, wherein said first arm portion is adapted to be pivotally displaced about said pivot member along a single plane when struck by a user, with said second, immovable arm portion remaining stationary;  
a stop arrangement for limiting the pivorable displacement of said first arm portion along said single plane; and  
a biasing element, formed independently of said stop arrangement, for biasing said first arm portion towards and against said stop arrangement and for maintaining said first and second arm portions in a predetermined alignment.

## Claims:

1. An apparatus for simulating a "high five" comprising:

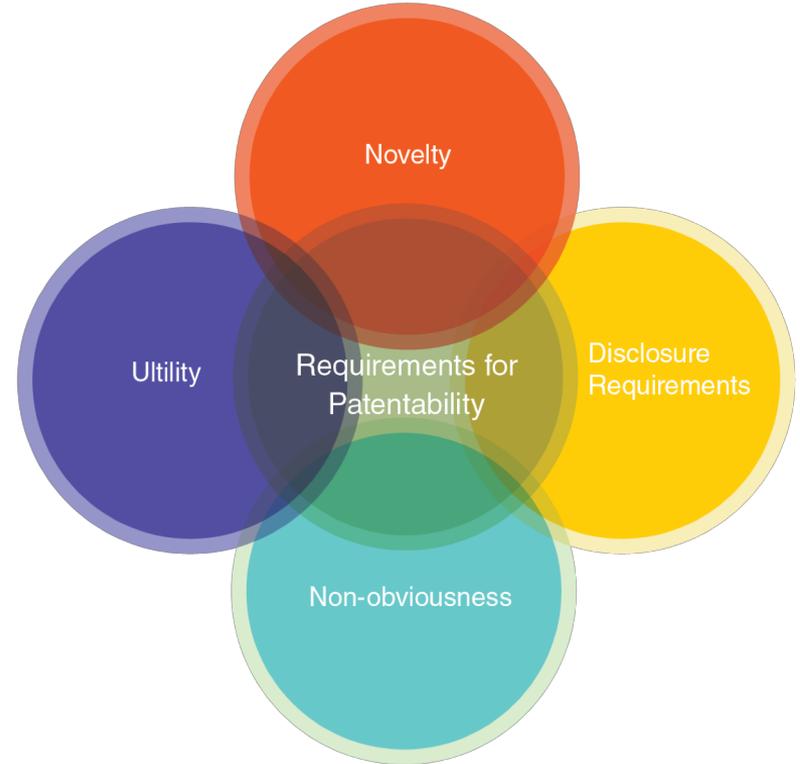
a first, movable arm portion for simulating a forearm, said first arm portion having a simulated hand secured thereto;

a second, immovable arm portion for simulating an upper arm....

wherein said first arm portion is adapted to be dislodged from against said stop arrangement, and pivotally displaced about said pivot member along said single plane, when said simulated hand is struck by a user, said biasing element subsequently biasing said first arm portion towards and against said stop arrangement, thereby reestablishing said predetermined alignment.

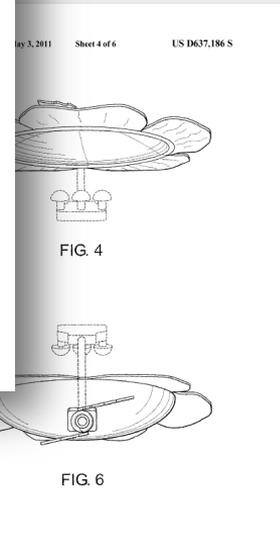
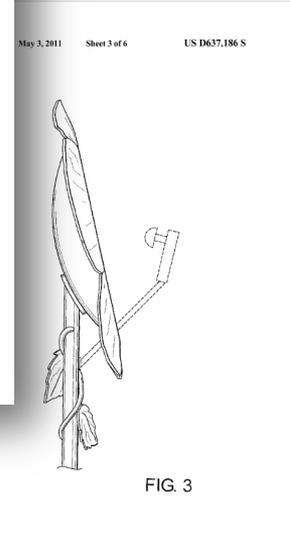
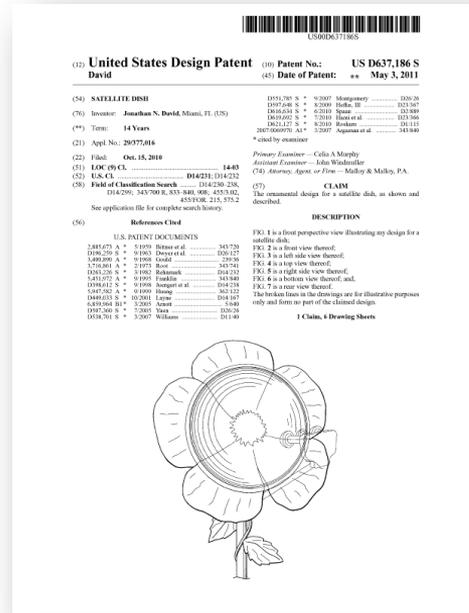
# Patent Protection

- Requirements for patentability
  - Novelty
  - Utility (subject matter eligibility)
  - Non-obviousness
  - Disclosure Requirements



# Patent Protection

- Forms of patent protection
  1. U.S. Utility Patent (provisional/non-provisional)
  2. **U.S. Design Patent**
  3. PCT Application
  4. Ex-U.S. Application



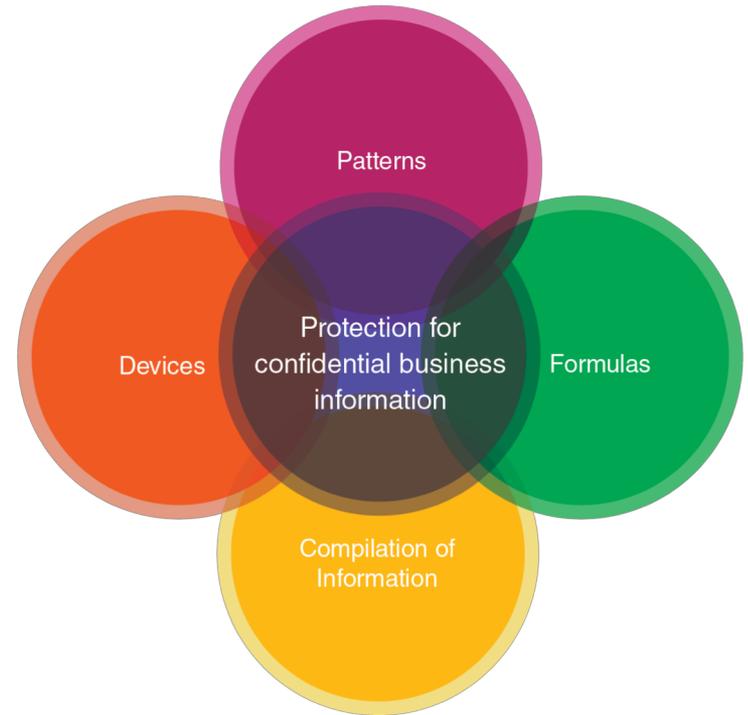
# Patent Examples

- **Process**
  - U.S. 8,016,240 – method of deploying a satellite fleet, including use of a launch vehicle with multiple satellites in a payload
- **Device**
  - U.S. 6,394,395 – combination solar panel and planar array antenna for a satellite
- **Composition of Matter**
  - U.S. 6,689,474 – a resorcinol polyester chain member with a thermal stabilizer
- **System**
  - U.S. 5,633,644 – system for monitoring ship traffic with a plurality of earth-orbiting satellites and a data processing center in communication with the satellites
- **Method of Manufacture**
  - U.S. 6,037,032 – method of molding a carbon-foam heat sink to prevent overheating of satellite during cyclic orbits



# Trade Secret Protection

- Protection for confidential business information
- Includes:
  - Formulas (e.g., Coke)
  - Patterns
  - Devices
  - Compilation of information
  - Algorithms (e.g., Google's PageRank)
  - Source code
  - Customer lists
  - Business plans
  - Financial data



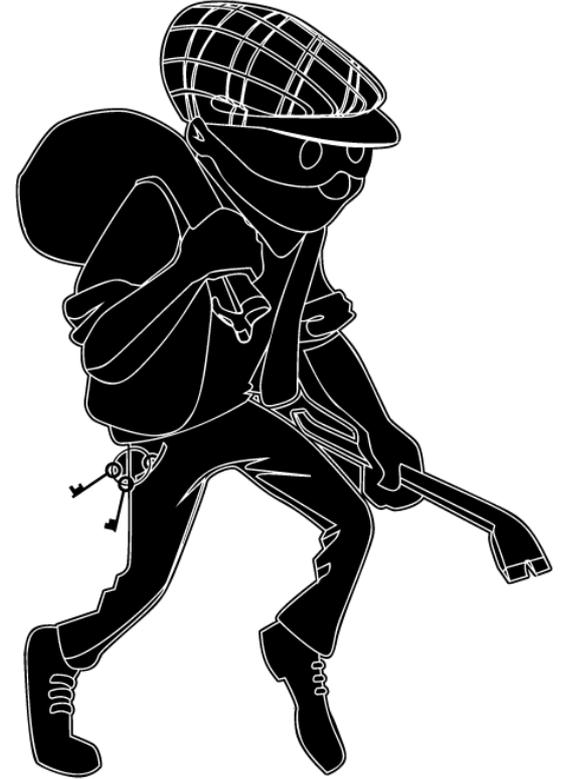
# Trade Secret Protection

- Requirements:
  - (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and
  - (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.



# Trade Secret Protection

- Trade secret rights **protect against**:
  1. Misappropriation
  2. Those who improperly derive (e.g., theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic or other means)
- Trade secret rights **do not protect against**:
  1. Reverse engineering
  2. Independent development



# Trademark

- Identifies source or origin of goods/services
- Trademark rights are created through:
  - Good faith adoption and use
  - Benefits of registration
  - Country by country
- Difference between <sup>TM</sup> and ®



# Trademark

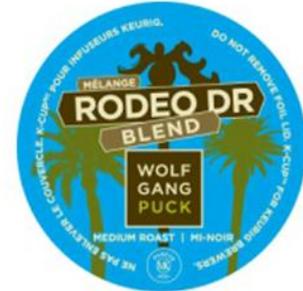
- Types of trademarks
  - Arbitrary
  - Fanciful
  - Suggestive
  - Descriptive
- Generic terms

LAUGHING MAN  
ALL BE HAPPY!

THE GOOD JAVA



COMPANY



# Copyright



- Protects *expression* of ideas
- Copyright rights granted to author/employer
- Includes:
  - Label designs
  - Pictorial, graphic, sculptural works
  - Literary works
  - Motion pictures, audiovisual works
  - Sound recordings
  - Derivative works

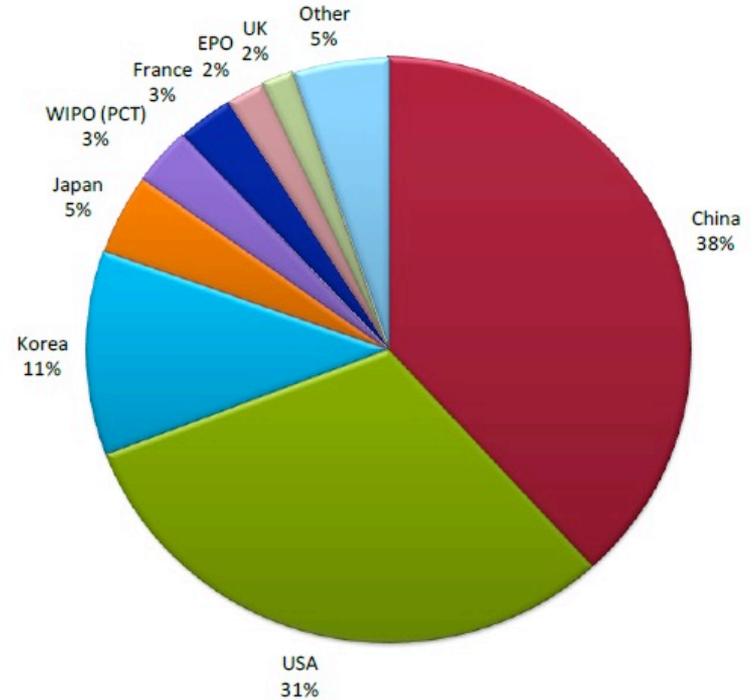
# Copyright

- **Requirements:**
  1. Author created the work
  2. Established immediately from the time the work is created in fixed form
  
- Copyright protection provides **exclusive rights to:**
  - Reproduce the work
  - Prepare derivative works
  - Distribute copies of the work
  - Display the work
  - Perform the work

# Patenting and Enforcement of IoT and IoS Innovations

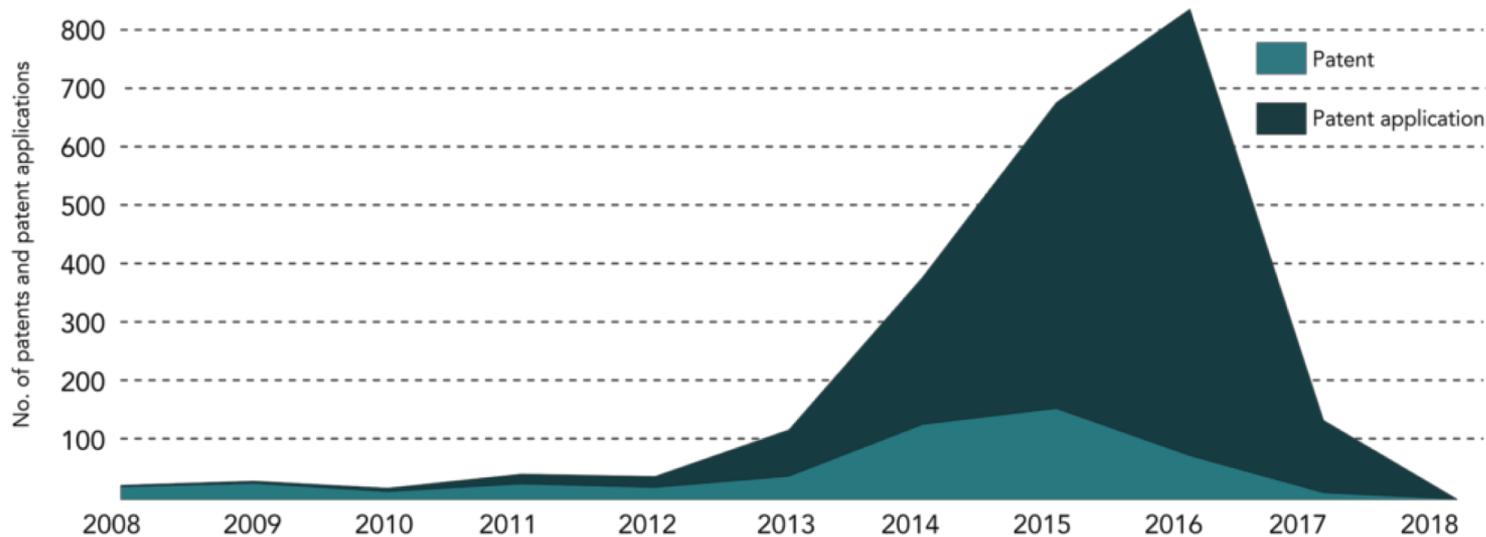
# Internet of Things Patents

- Almost 22,000 IoT patents were published between 2004-2013, with China, USA and Korea as the most common originating country
- More than 7,000 assignees and nearly 18,000 inventors
- Leading filers include LG, Samsung, Ericsson, Qualcomm, Sony, ZTE, Huawei, IBM, Microsoft



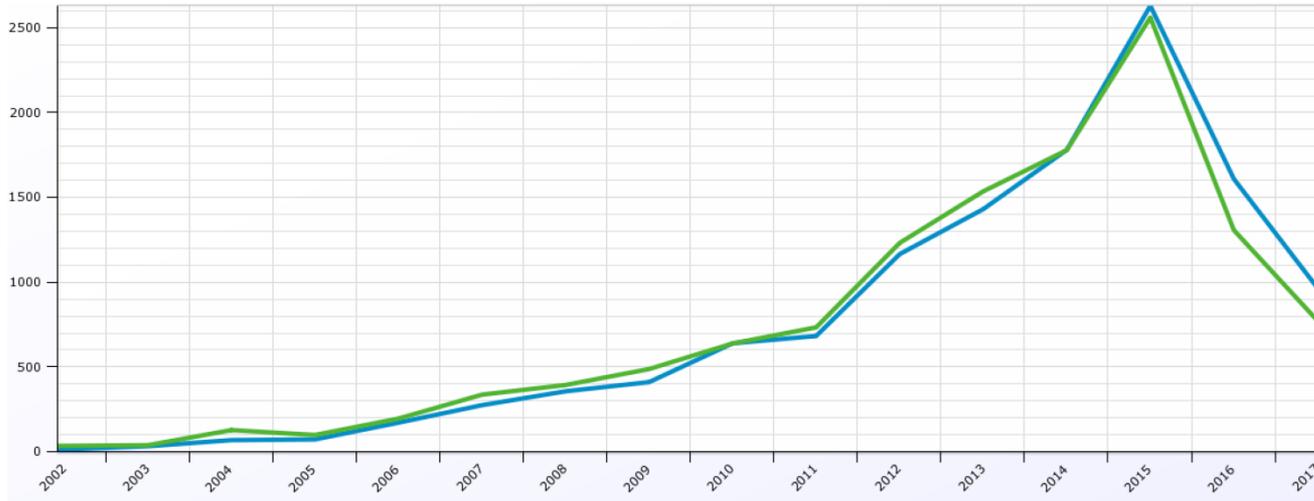
Source: UK Intellectual Property Office, "Eight Great Technologies – The Internet of Things," available at [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/343879/informatics-internet.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/343879/informatics-internet.pdf)

# Internet of Things Patents – U.S.



Source: Parola Analytics, September 2018 Newsletter, <https://parolaanalytics.com/parola-news/internet-of-things/>

# Internet of Things Patents - Transactions

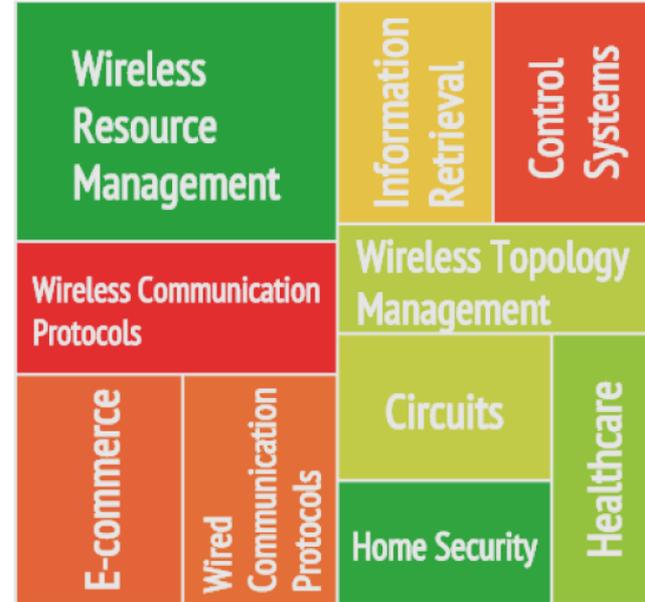


- Transaction of patent rights (e.g., sale) following a similar pattern
- Larger companies have acquired hundreds of IoT patents

Source: Relecura for WIPO, "Relcura IP Intelligence Report, May 2017" available at [https://relecura.com/reports/IoT\\_IP\\_Landscape\\_Commercialization\\_May2017.pdf](https://relecura.com/reports/IoT_IP_Landscape_Commercialization_May2017.pdf)

# Internet of Things Patents – Patenting Obstacles

- Cannot patent “abstract ideas”
  - The “§ 101” issue
  - Field?
- U.S. Patent Office’s evolving position
  - New case law
  - New guidance to Patent Examiners



Source: LexInnova for WIPO, “Internet of Things – Patent Landscape Analysis”

# Jurisdiction for Enforcement of U.S. Patents

## 35 U.S.C. §105:

(a) Any invention ***made, used or sold in outer space on a space object*** or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title, **except** with respect to any space object or component thereof that is specifically identified and otherwise provided for by an international agreement to which the United States is a party, **or** with respect to any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space.

# Jurisdiction for Enforcement of U.S. Patents

## **35 U.S.C. §105 (cont'd):**

(b) Any invention made, used or sold in outer space on a space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space, shall be considered to be made, used or sold within the United States for the purposes of this title if specifically so agreed in an international agreement between the United States and the state of registry.

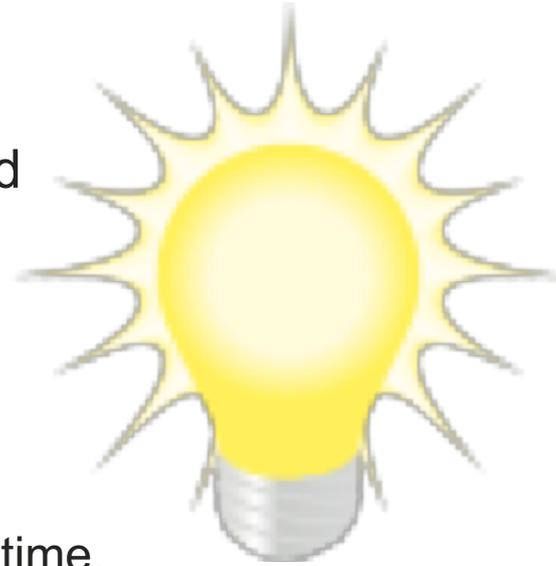
## Jurisdiction for Enforcement of U.S. Patents

- ***NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282 (Fed.Cir.2005)***
  - “The use of a claimed system under section 271(a) is the place at which the system as a whole is put into service, i.e., the place where control of the system is exercised and beneficial use of the system obtained.”
    - [C]ustomers located within the United States controlled the transmission of the originated information and also benefited from such an exchange of information. Thus, the location of the Relay in Canada did not ... preclude infringement of the asserted system claims in this case.



## Who is an “inventor” for this patent?

- An inventor is a person who conceived the patented invention (i.e., device, method, etc.)
- Each inventor who generally contributes to the conception must apply for the patent jointly.
- Even if:
  - (1) they did not physically work together or at the same time,
  - (2) each did not make the same type or amount or contribution, and/or
  - (3) each did not make a contribution to the subject matter of every claim



## Collaborators are not necessarily inventors...

- Working under the direction and control of an inventor and carrying out tasks primarily based on application of ordinary skill in the art will not establish joint inventorship.
  - One may not qualify as a joint inventor by merely assisting the actual inventor after conception of the claimed invention.
- This is important because a patent is invalid if more or less than the true inventors are named

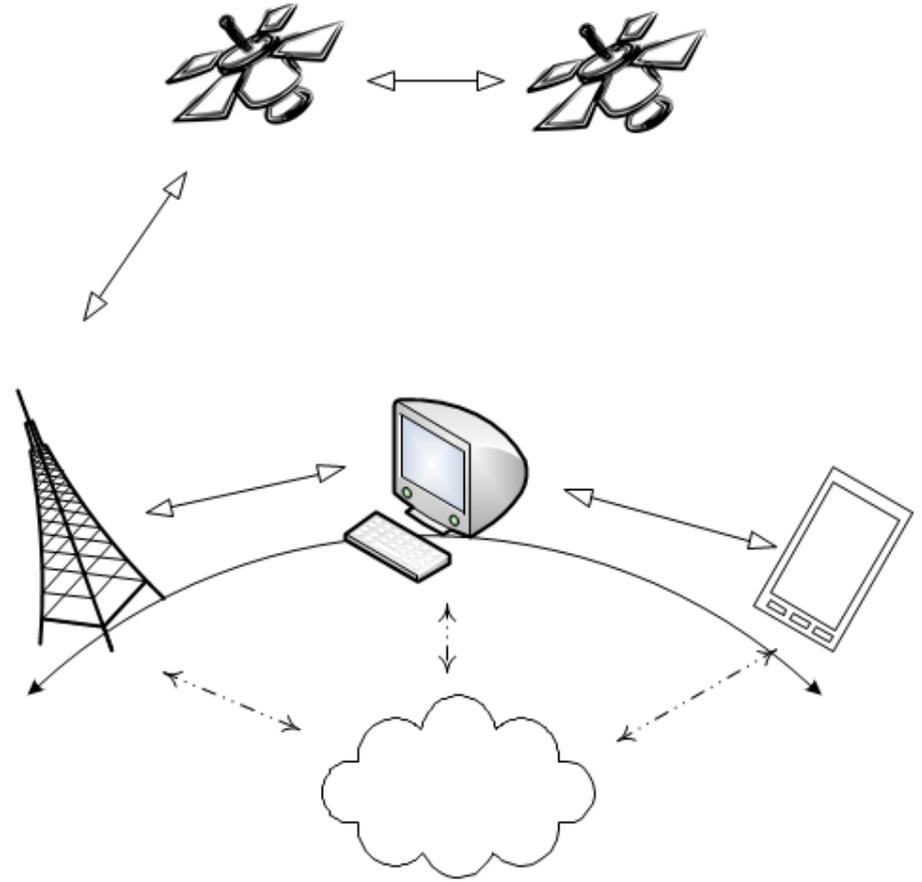
# Implementing an IP Strategy

# Implementing an IP Strategy

- Step 1 – Develop/implement IP policies/procedures
  - Step 2 – Develop strategy for IP protection/FTO
  - Step 3 – Secure IP rights/FTO clearances/opinions
  - Step 4 – Negotiate/execute agreements/licenses
  - Step 5 – Develop strategy for enforcement/defense
- 
- Ongoing process
  - Product/technology development lifecycle

# Implementing an IP Strategy

IoT meets IoS Example:



# Implementing an IP Strategy

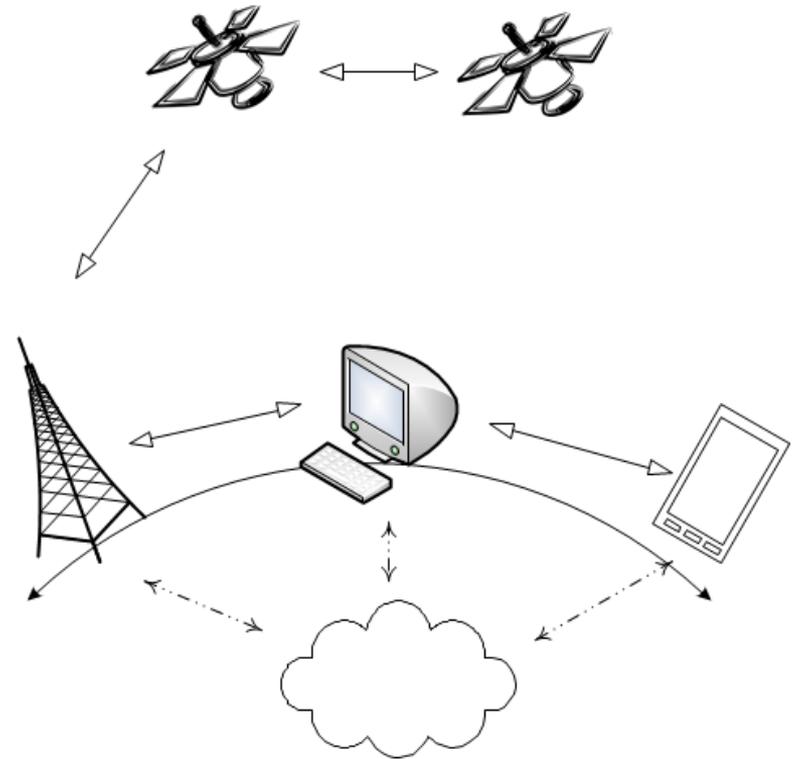
- Step 1 – Develop/implement IP policies/procedures
  - Employment/IP agreements with employees
  - Agreement with third parties/developers
  - Confidentiality/non-disclosure agreements
  - Record-keeping and identifying ideas, inventions, designs, etc.
  - Keep all developments secret

# Implementing an IP Strategy

- Step 2 – Develop strategy for IP protection
  - Consider idea, product, process, brand, name, design, logo, tagline, etc. and different forms of IP protection
  - Consider protecting product composition, process, equipment
    - Patent or trade secret
  - Consider protecting brand, name, packaging, logo, design
    - Trademark or copyright

# Implementing an IP Strategy

- Step 3 – Secure IP rights/FTO clearances/opinions
  - Perform clearance/FTO searches and consider opinions re: product, process, equipment, brand, name, packaging, logo, design
  - Prepare and file applications for patent, trademark, copyright
  - Prepare schedule of IP assets, including trade secrets



# Implementing an IP Strategy

- Step 4 – Negotiate/execute agreements/licenses
  - Confidentiality/non-disclosure agreements with TPs
  - Product/prototype evaluation agreements with TPs
  - IP licensing agreements
    - Marking requirements
    - Quality control
    - Indemnification/limitation of liability
  - Manufacturing/distribution/reseller agreements
  - Agreements with private label manufacturers
    - IP ownership and exclusivity

# Implementing an IP Strategy

- Step 5 – Develop strategy for enforcement/defense
  - IP investigation
    - Infringement, validity, enforceability, unfair competition
  - Explore options for enforcement, defense, licensing, other business arrangements
  - Contact potential infringer/IP owner
  - Initiate litigation (D/C, ITC, PTO)
  - ADR options



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Thank you!

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