



Kate Brown, Esq. , Swiss Re Corporate Solutions

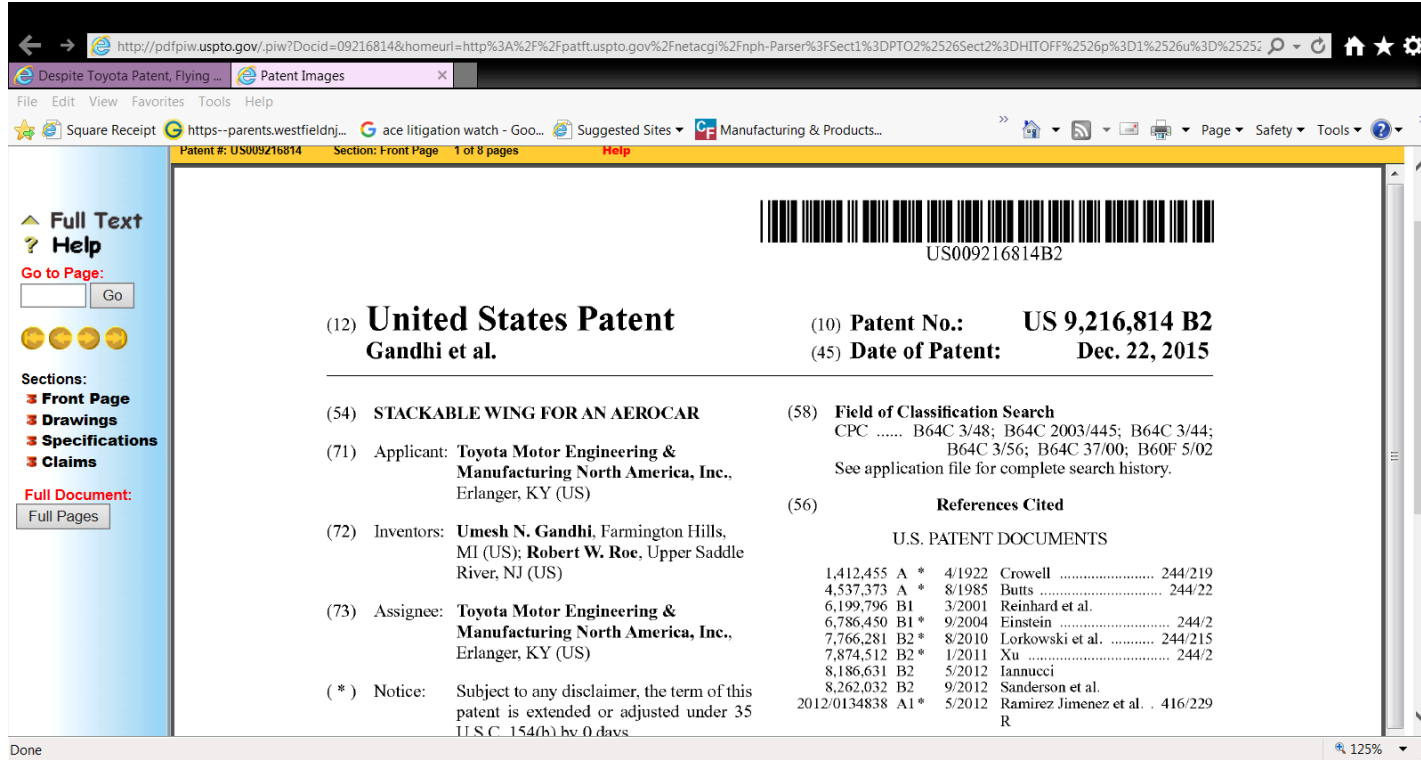
The Future Will Be Great... If We're Ready



Nassim Taleb Author of the Black Swan

- “There are two ways to approach the problem of risk. The first one is trying to understand the dynamics of the world. Interesting, but you’re not going to get very far. The second one is to make sure your contract insulates you from it.”
- “In other words, what do you need a statistician or a lawyer? You need both but I’d rather have 10 lawyers for every statistician,”
- Mr. Taleb is a statistician.
- My principle is that it’s preferable to take risks you understand then try to understand risk you’re taking. How do you do that? It’s much easier to change a risk contractually than then [get a grip] on the future.

Are You Ready For the Flying Car?



Patent #: US009216814 Section: Front Page 1 of 8 pages Help

Full Text Help

Go to Page: Go

Sections:

- Front Page
- Drawings
- Specifications
- Claims

Full Document:
Full Pages

(12) **United States Patent**

Gandhi et al.

(10) **Patent No.:** **US 9,216,814 B2**

(45) **Date of Patent:** **Dec. 22, 2015**

(54) **STACKABLE WING FOR AN AEROCAR**

(71) Applicant: **Toyota Motor Engineering & Manufacturing North America, Inc.**, Erlanger, KY (US)

(72) Inventors: **Umesh N. Gandhi**, Farmington Hills, MI (US); **Robert W. Roe**, Upper Saddle River, NJ (US)

(73) Assignee: **Toyota Motor Engineering & Manufacturing North America, Inc.**, Erlanger, KY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(h) by 0 days.

(58) **Field of Classification Search**
CPC B64C 3/48; B64C 2003/445; B64C 3/44; B64C 3/56; B64C 37/00; B60F 5/02
See application file for complete search history.

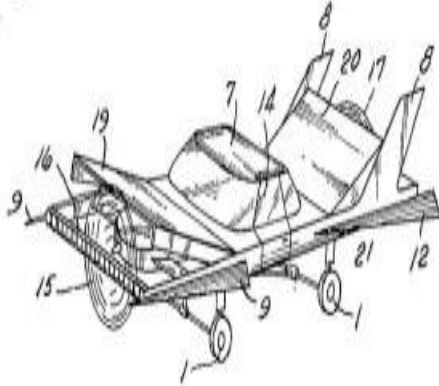
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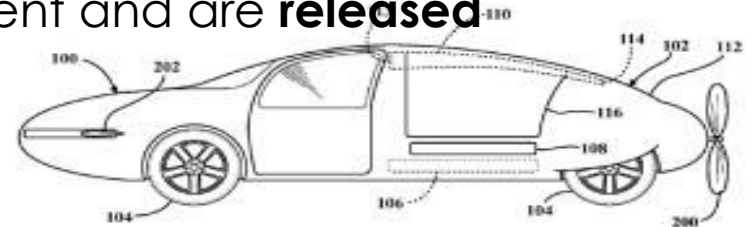
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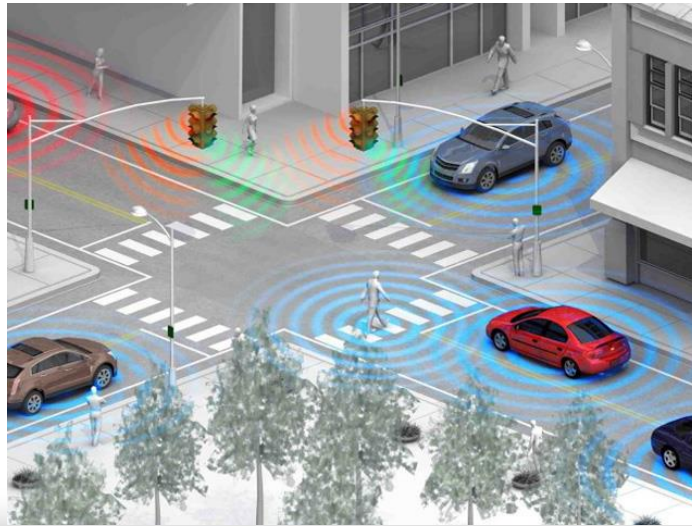


- **June 2016--“Shape morphing fuselage with stackable wings for an aerocar”**
- Shape-shifting skin **and fully loaded propulsion system** for when driver is ready to take to the sky,
- **Wings fold up** inside compartment and are **released through a hatch**
- Propeller on back bumper



"The self driving car is less than a decade away."

- Alan Taub, Vice President of Global Research & Development at General Motors (www.autoguide.com)



Rio Tinto and Autonomous Haulage (today*)



We own and operate the world's largest autonomous haulage fleet operating in full production mode on three mine sites



Our autonomous fleets have covered ~3,900,000km hauling material in our operations (x 5 trips to moon and back)



We have moved >200,000,000 tonnes using autonomous technology (~ 3,500 Sydney Harbour Bridges or 540 Empire State Buildings)



We have over 1,000 Rio Tinto person years of experience operating autonomous haulage embedded in our business

**Correct as of August 6 2014*

RioTinto
Mine of the Future™

Source: riotinto.com

Two perspectives when it comes to driverless vehicles

Sooner



- A solved problem...in a few years”** (Elon Musk, Tesla Motors)
- “By 2018”** (Sergey Brin, Google)
- “By 2020”** (Carlos Ghosen, Renault-Nissan)
- “Might not have a steering wheel”** (Dieter Zetsche, Daimler AG)

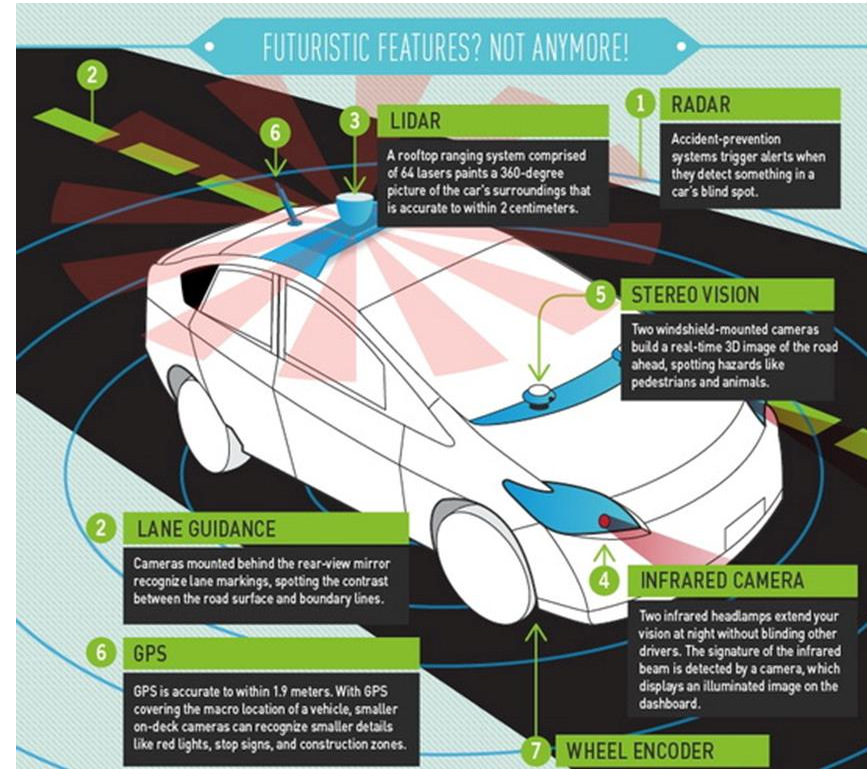
Later



- “Aren't coming soon”** (Warren Buffett, Berkshire Hathaway)
- “This is a very, very long term vision”** (Peter Mertens, AB Volvo)
- “Between 15 and 20 years away”** (Insurance Information Institute)

Build a Car, Add a Computer!

- Anti-Lock Brakes
- Electronic Stability control
- Adaptive cruise control
- Lane-departure warning system
- Self parking
- Automated guided vehicle systems
- Lidar-Systems(with google cars)
or Cruise Automated Systems(Audi)
- Infrared cameras



Build A Computer, Then Add A Car!





Buttons for start/pullover and emergency stop



Safety measures:

Flexible windscreen

Foam-like material

Max speed 25mph (40km/h)

Sensors used for self-driving

Seating for two passengers

Google

Levels of Autonomous Driving

Level 1 (Function-specific automation)

- The human has complete authority, but cedes limited control of certain functions to the vehicle in certain normal driving or crash imminent situations. [Example: electronic stability control.](#)

Level 2 (Combined function automation)

- Automation of at least two control functions designed to work in harmony (e.g., [adaptive cruise control and lane centering](#)) in certain driving situations. Enables hands-off-wheel and foot-off-pedal operation. **Driver still responsible for monitoring and safe operation and expected to be available at all times to resume control of the vehicle.**

Levels of Autonomous Driving

Level 3 (Limited self-driving)

- Vehicle controls all safety functions under certain traffic and environmental conditions. Human can cede monitoring authority to vehicle, which must alert driver if conditions require transition to driver control. **Driver expected to be available for occasional control.** Example: Google car.

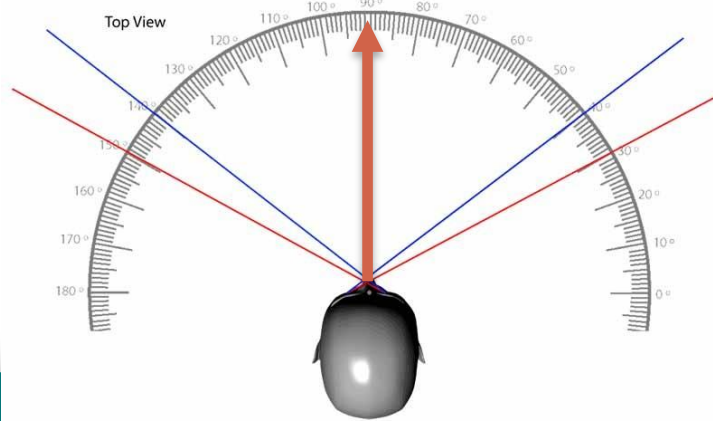
Level 4 (Full self-driving automation)

- Vehicle controls all safety functions and monitors conditions for the entire trip. The human provides destination or navigation input but is not expected to be available for control during the trip. **Vehicle may operate while unoccupied.**
- Resp. for safe operation rests on the automated system

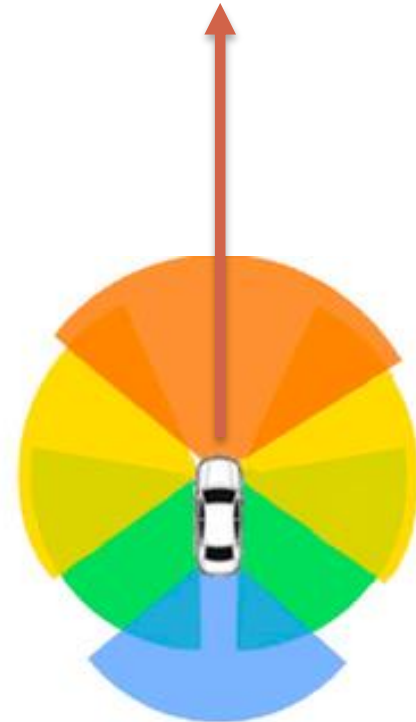
Human Vision vs. Machine Vision

The
National
Underwriter
Company

Human Stereoscopic Field of View Approx 30 Meters



Approx 300 Meters



What It Might Mean

- Eno Center for Transportation: If 10% of cars and trucks on the road were self-driving, they could reduce traffic deaths by 1,000 per year and produce nearly \$38B in economic savings.
- If 90% of vehicles were self-driving, as many as 21,700 lives per year could be saved, and economic and other benefits could reach a staggering \$447 billion.
- NHTSA pre-crash scenario typology for crash avoidance research
 - 71% fewer crashes
 - 65% fewer injuries
 - 81% fewer fatalities

What It Might Mean

- Virginia Tech-Toyota June 2014 study:
 - Lane-departure warning systems would have prevented 30.3% of the crashes caused by lane drifting, and 25.8% the injuries. Rear-end and collision warning systems and automatic braking would have prevented only 3.2% to 7.7% of crashes but would have reduced their severity.
 - The number of people injured or killed would have declined from 29%-50%.

A New Business Model

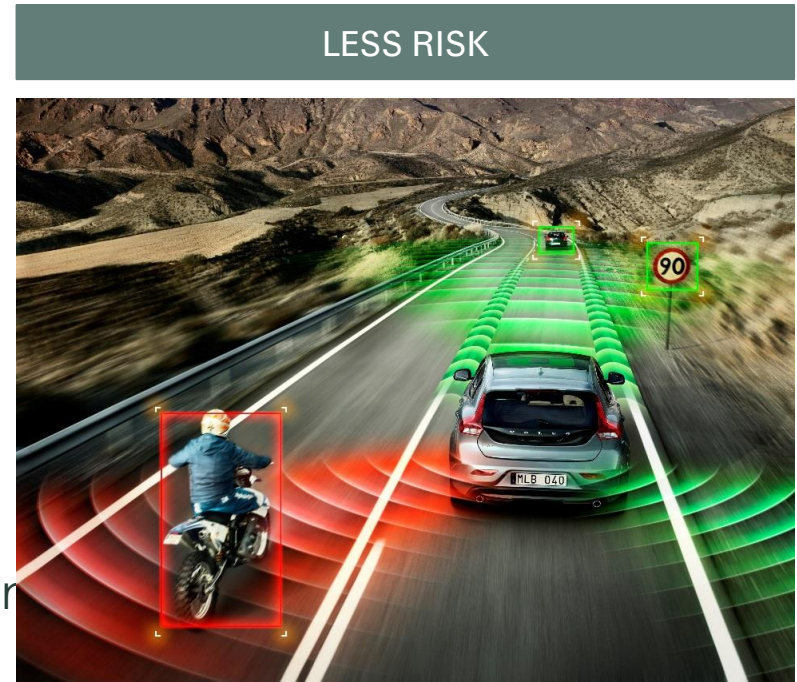
- Used to sell cars gas and insurance
- Now: sell miles, trips, and experiences
- Safer, more convenient, more productive, more affordable
- Fewer injuries and fatalities, less energy use, better land use

A New Business Model

- IHS Automotive forecasts total worldwide sales of self-driving cars will grow from nearly 230,000 in 2025 to 11.8 million in 2035 – 7 million SDCs with both driver control and autonomous control and 4.8 million that have only autonomous control. In all, there should be nearly 54 million self-driving cars in use globally by 2035.
- **North America is forecasted to account for 29% of worldwide sales** of self-driving cars with human controls (level 3) and self-driving only cars (level 4) in 2035, or nearly 3.5 million vehicles. **China will capture the second largest share at 24%**, or more than 2.8 million units, while **Western Europe will account for 20% of the total**, 2.4 million vehicles.

A Win For Consumers

- Lower auto insurance premiums
- Crash avoidance
- Hands-free calling
- Built-in navigation
- Emergency response
- Stolen vehicle recovery
- Remote software upgrades
- Data on traffic and road conditions
- Enhanced situational awareness



Open Issues

- Cyber security
- Insurance
- Product liability
- Risk transfer between OEM's and software companies
- Uniformity
- Cost
- “The car has trouble in the rain, for instance, when its lasers bounce off shiny surfaces. (The first drops call forth a small icon of a cloud onscreen and a voice warning that auto-drive will soon disengage.)”

FIG. 6A

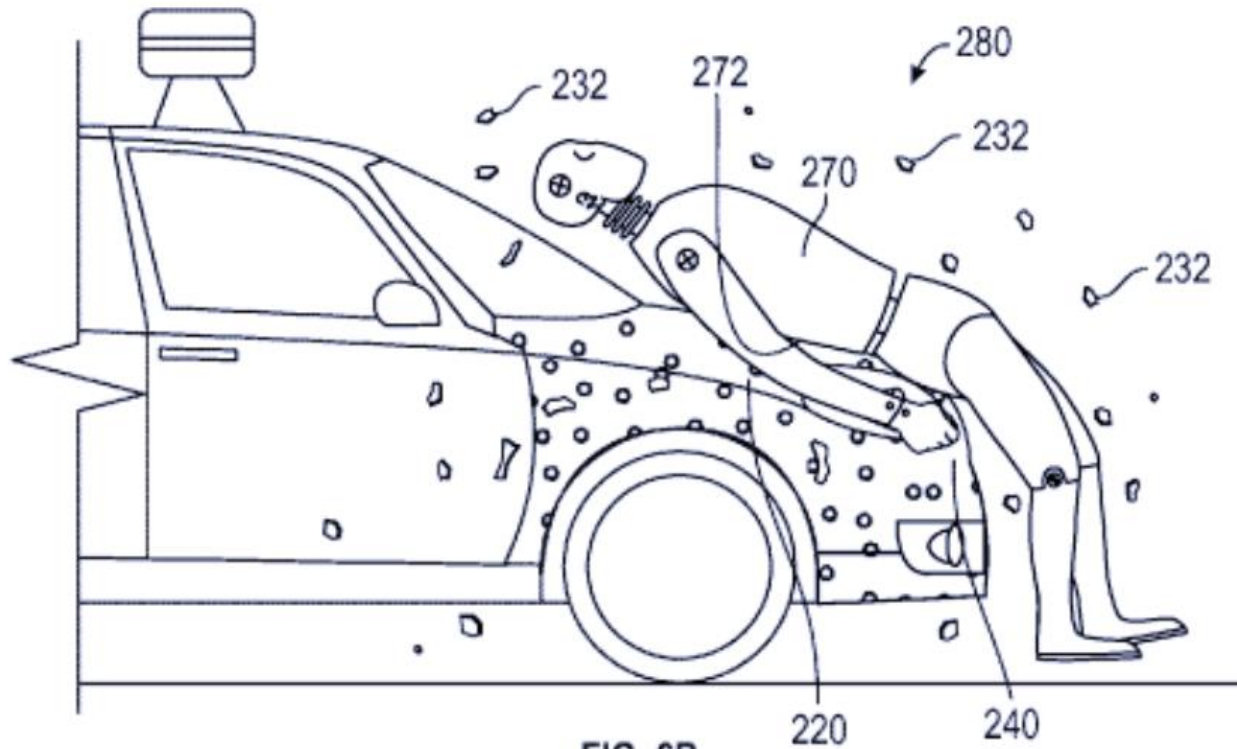


FIG. 6B

Cars That Can “Catch Humans Like Flies”

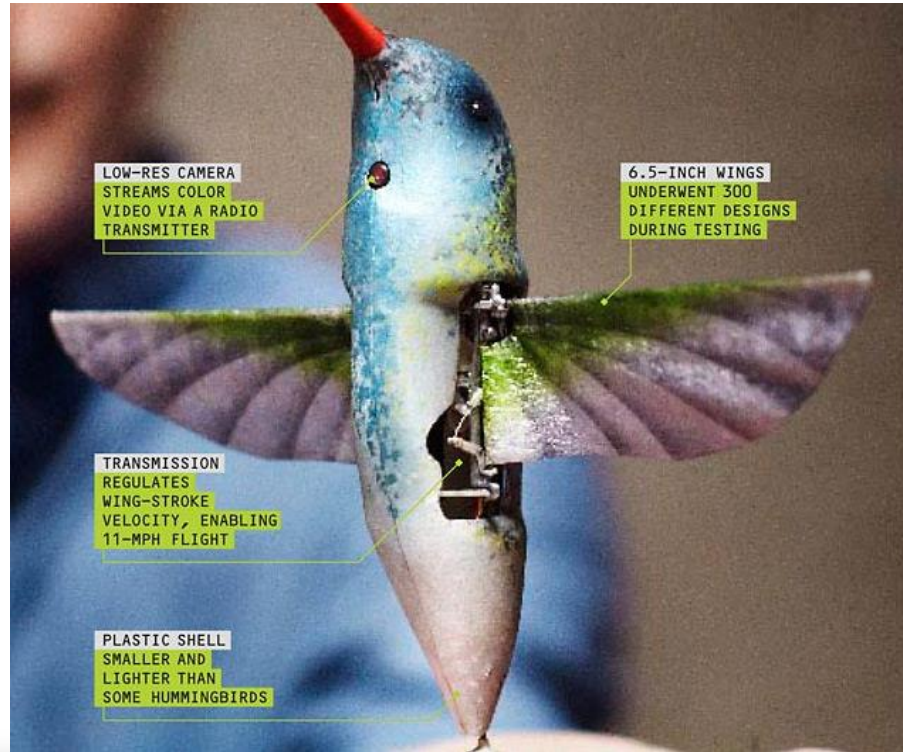
- May 17, 2016 Google's receives a patent for what it described as human flypaper, a "sticky" adhesive coating, in an aim to reduce the case of deadly road accidents.
- The front bumper, hood and side panels of the car will be enclosed with the sticky coating. As soon as a pedestrian is hit, the protective layer will break apart and trap the pedestrian so that person would not be sent skywards
- In Europe, Volvo's windshield base is equipped with external airbags to lessen collision impact in an accident. Jaguar also uses a deployable hood that provides a more flexible surface.

Cars That Can “Catch Humans Like Flies”

- If a person can stick to the hood, then bugs and dirt are also likely to stick, which can be messy. To avoid this, the company envisions a unique covering, an exterior eggshell that will easily break upon impact.
- "Upon impact with a pedestrian, the coating is broken exposing the adhesive layer," [reads](#) the summary of the submitted patent. "The adhesive bonds the pedestrian to the vehicle so that the pedestrian remains with the vehicle until it stops, and is not thrown from the vehicle, thereby preventing a secondary impact between the pedestrian and the road surface or other object."



TIME Magazine – 2011 Invention of the Year



Source: TIME

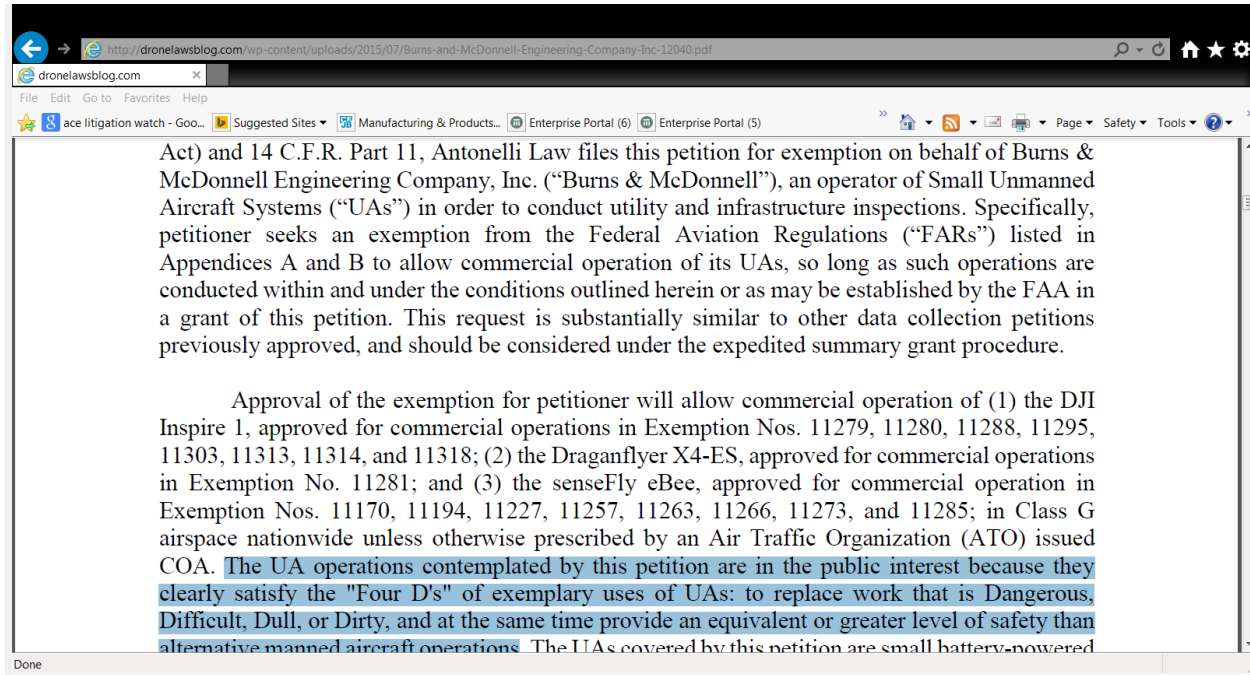
What Can They Do? How Big Will They Be?

- Transport Canada's website: UAV's
- “operate in diverse environments and in high risk roles, including but not limited to: atmospheric research (including weather and atmospheric gas sampling), scientific research, oceanographic research, geophysical research, mineral exploration, imaging spectrometry, telecommunications relay platforms, police surveillance, border patrol, survey and inspection of remote power lines and pipelines, traffic and accident surveillance, emergency and disaster monitoring, cartography and mapping, search and rescue, agricultural spraying, aerial photography, promotion and advertising, weather reconnaissance, flight research, and fire fighting monitoring and management.

What Can They Do? How Big Will They Be?

- The Association for Unmanned Vehicle Systems International predicts that within 10 years (from 2015 to 2025) commercial drones will create 100,000 new jobs and around US\$82 billion in economic activity.
- Oliver Wyman “ By 2035, the number of UAV operations per year will surpass that of manned aircraft”

Gets Rid of the 4 D's



Act) and 14 C.F.R. Part 11, Antonelli Law files this petition for exemption on behalf of Burns & McDonnell Engineering Company, Inc. (“Burns & McDonnell”), an operator of Small Unmanned Aircraft Systems (“UAs”) in order to conduct utility and infrastructure inspections. Specifically, petitioner seeks an exemption from the Federal Aviation Regulations (“FARs”) listed in Appendices A and B to allow commercial operation of its UAs, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA in a grant of this petition. This request is substantially similar to other data collection petitions previously approved, and should be considered under the expedited summary grant procedure.

Approval of the exemption for petitioner will allow commercial operation of (1) the DJI Inspire 1, approved for commercial operations in Exemption Nos. 11279, 11280, 11288, 11295, 11303, 11313, 11314, and 11318; (2) the Draganflyer X4-ES, approved for commercial operations in Exemption No. 11281; and (3) the senseFly eBee, approved for commercial operation in Exemption Nos. 11170, 11194, 11227, 11257, 11263, 11266, 11273, and 11285; in Class G airspace nationwide unless otherwise prescribed by an Air Traffic Organization (ATO) issued COA. The UA operations contemplated by this petition are in the public interest because they clearly satisfy the "Four D's" of exemplary uses of UAs: to replace work that is Dangerous, Difficult, Dull, or Dirty, and at the same time provide an equivalent or greater level of safety than alternative manned aircraft operations. The UAs covered by this petition are small battery-powered

Impact on consumer product delivery

- December 2013, Jeff Bezos CEO of Amazon, appeared on 60 minutes and demonstrated the octocopter-a drone which he claimed will deliver the 85% of Amazon's packages which weigh less than 4lbs.
- December 2014, Transport Canada issued a SFOC valid for one year to Amazon which allows the company to operate a testing facility in a rural area in B.C. for its Prime Air Project, which eventually intends to use drones to deliver packages to customers within 30 minutes of order as long as the delivery address is within 10 miles of a distribution center.

Impact on consumer product delivery

- Walker Sands study: Two-thirds of consumers say they expect to receive their first drone-delivered package in the next five years, and four out of five shoppers say drone delivery within the hour would make them more likely to order online from a retailer.
- Almost 80% of consumers are willing to pay for drone delivery, with 48% saying they would pay at least \$5.

- (54) **AUTOMATED PACKAGE DELIVERY TO A DELIVERY RECEPTACLE**
- (51) Applicant: **GOOGLE INC.**, Mountain View, CA (US)
- (72) Inventors: **Varun Soundararajan**, Sunnyvale, CA (US); **Anurag Agrawal**, Palo Alto, CA (US)
- (73) Assignee: **GOOGLE INC.**, Mountain View, CA (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/520,987**

(22) Filed: **Oct. 22, 2014**

- (51) **Int. Cl.**
G01S 1/44 (2006.01)
G05D 1/02 (2006.01)
G06Q 10/08 (2012.01)
G01C 21/00 (2006.01)

(52) **U.S. Cl.**
CPC . **G01S 1/44** (2013.01); **G01C 21/00** (2013.01);
G05D 1/0202 (2013.01); **G06Q 10/0833** (2013.01)

(58) **Field of Classification Search**
USPC 701/2
See application file for complete search history.

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Berthon, "International Search Report and Written Opinion issued in copending PCT Application No. PCT/US2015/028823 filed May 1, 2015", Jul. 14, 2015, 1-10.

(Continued)

Primary Examiner — Thomas Tarcza

Assistant Examiner — Alex C Dunn

(74) Attorney, Agent, or Firm — Johnson, Marcou & Isaacs, LLC

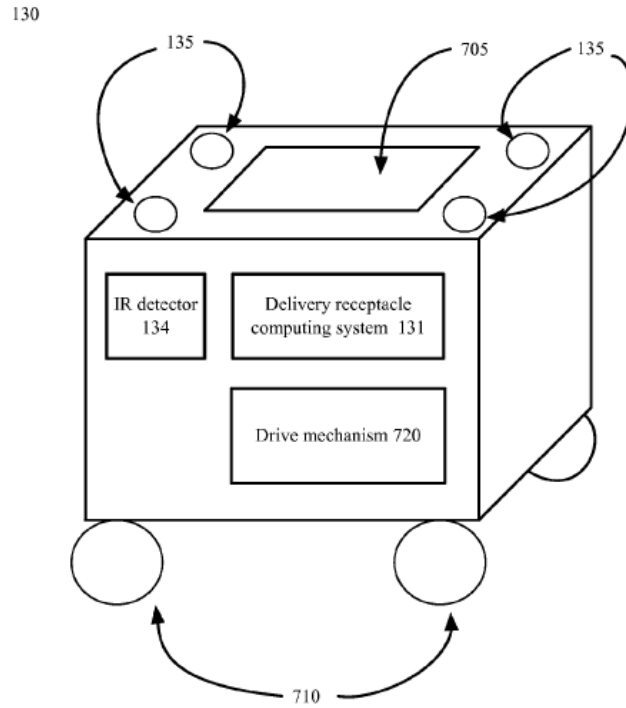
(57) **ABSTRACT**

Improving automated package delivery to mobile delivery receptacles to allow accurate and reliable package deliveries comprises a delivery receptacle for an automated package delivery via an unmanned aerial delivery device. The delivery receptacle is notified of a pending delivery and travels to a receiving location. The delivery receptacle emits infrared ("IR") beacons from one or more IR beacon transmitters. An aerial delivery device detects the IR beacon and uses the beacons to navigate to the delivery receptacle. The delivery receptacle receives IR beacon responses from the aerial delivery device and continually or periodically directs the IR beacons in the direction of the aerial delivery device. The aerial delivery device deposits the package in the delivery receptacle. After receiving the package, the delivery receptacle transports the package to a secure location, such as into a garage.

Source: United States Patent and Trademark Office

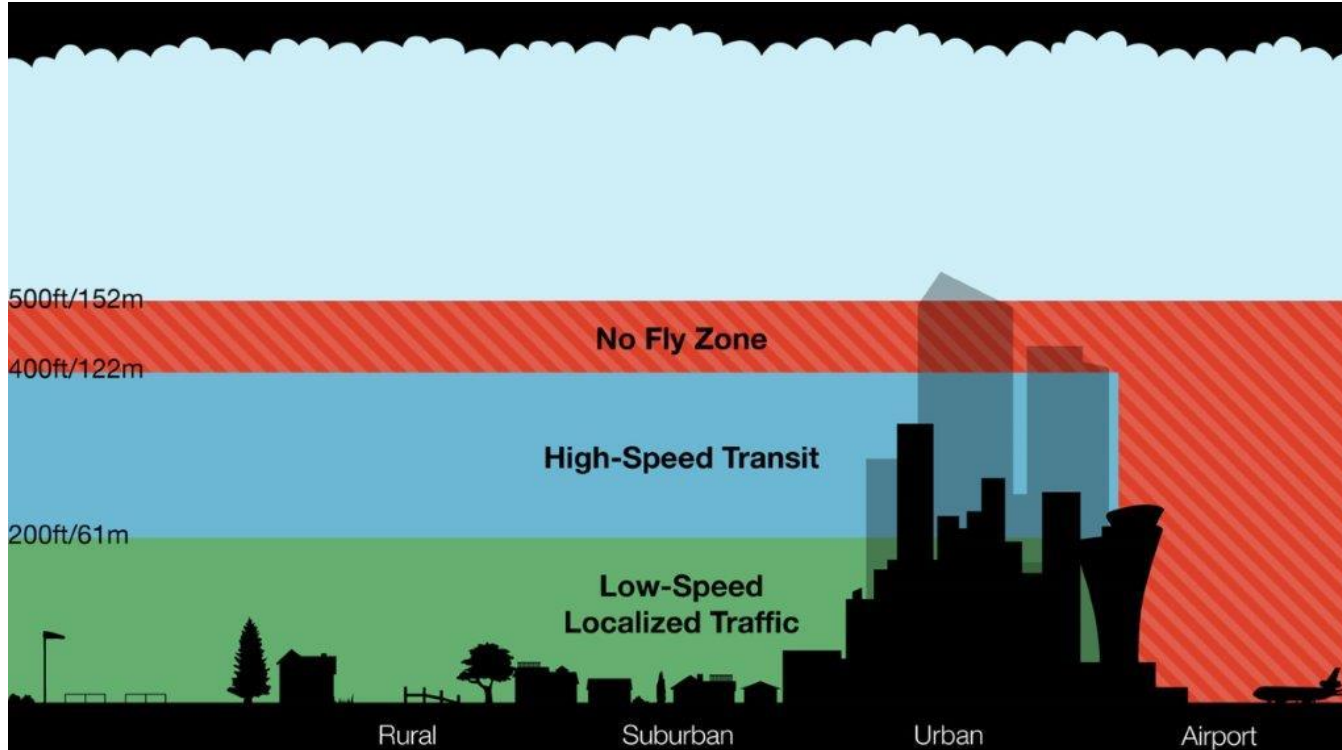
How exactly is this going to work?

- January, 2016, Google receives a patent for a system in which a hovering drone would lower goods into a cart, which would then transport the package to a safe holding spot, such as in a garage.
- The delivery bin transmits its location to the drone via an infrared beacon. The drone drops the package or lowers it via a cable. The motorized bin would then transport the package to a safe location, or drop it in a mail slot. Never touches your property.
- Amazon, demo videos of drones touching down on a backyard mat after a customer confirms their yard is clear.
- Drone researcher at NASA suggested that 10-foot-tall mailboxes could be installed for drones to land on. Isolated pets and children from potential run-ins. Chimneys could be converted into delivery chutes.



Source: United States Patent and Trademark Office

Amazon's Proposed Drone Super Highway in the Sky



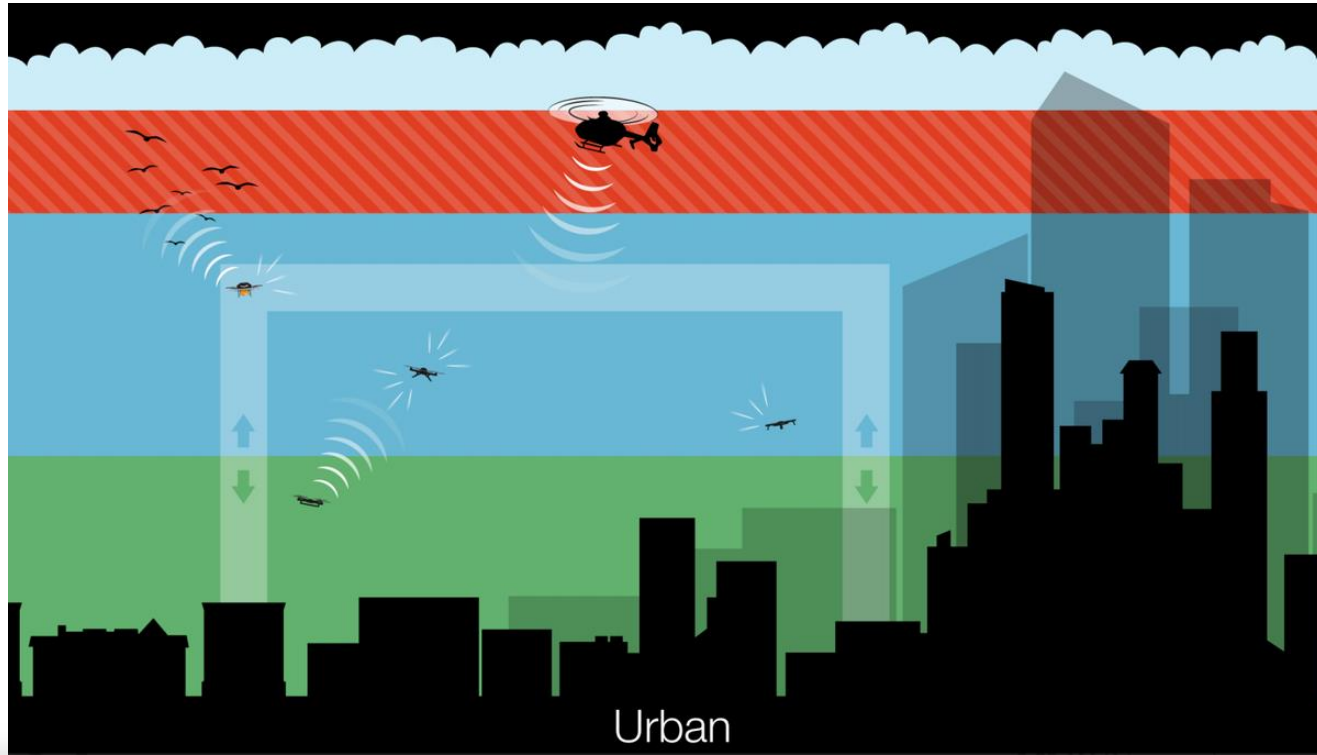
Express or Local?

- Amazon's proposal, which is in line with similar ideas floated by NASA and Google, would create a slow lane for local traffic below 200 feet and a fast lane for long-distance transport between 200 and 400 feet.
- Altitudes between 400 and 500 feet would become a no-fly zone,
- Create a central command and control network that takes in data about the position of each drone and shares it with every other vehicle connected to the network.
- Access to the different layers of the airspace would be governed by how well your drone can communicate with its pilot, the command and control network, and other drones.

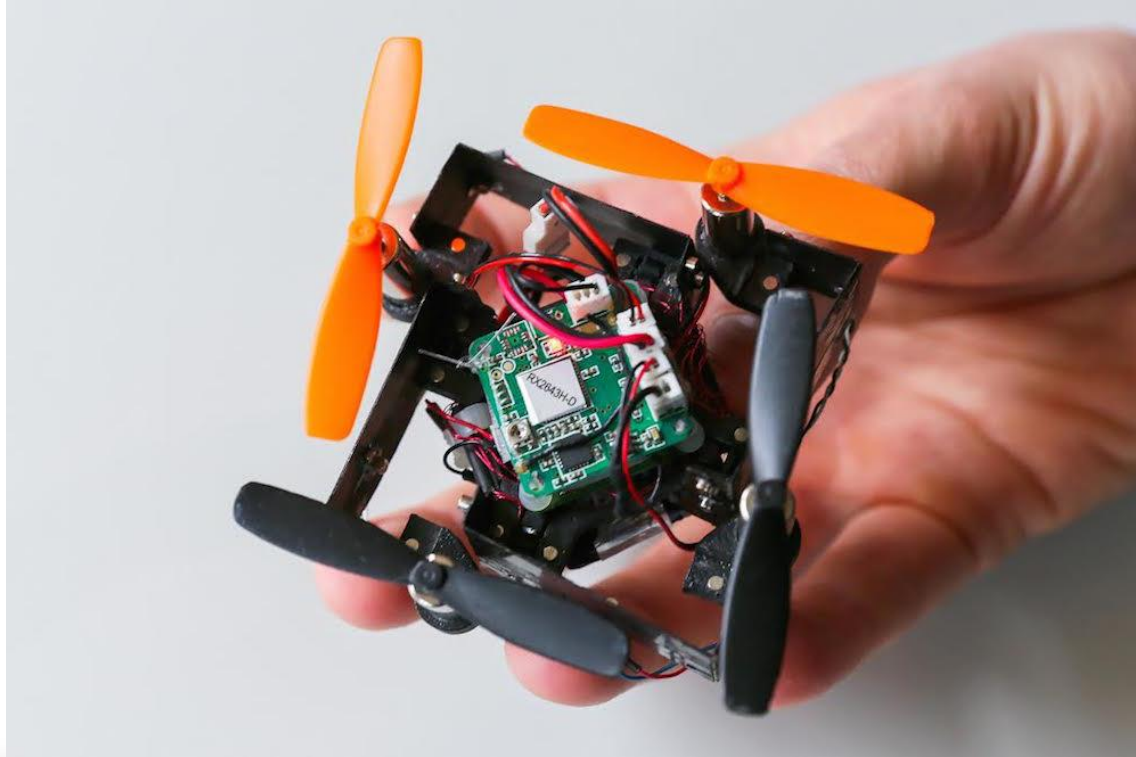
Express or Local?

- This new air traffic control system would also link UAS with traditional aircraft. If a helicopter from the fire department needed to fly low over an emergency, for example, it would be able to communicate with command and control, warning drones it was in the area, and creating a geo-fenced area around itself that would become a no-fly zone.

Like a “Ballet in the Sky”




But does it fit in your pocket?



Wallet? Photo ID? Cash -- What's That?

- Get Ready for Biometrics
- Tangerine Bank has released a new version of its mobile banking app for iOS to include eyeprint recognition and voice biometrics for identity verification, and an in-app secure chat function.
- Royal Bank of Canada launched pilot tests of Nymi, a Canadian made wristband that verifies your identity based on heart rhythms.
- Goode Intelligence predicts the number of customers using biometrics to access banking services will jump from 450 million in 2015 to more than one billion by 2017. The study suggests biometrics will become the most common method of user authentication by 2020.
- In a 2014 survey by the Deloitte Center for Financial Services, 72% of consumers said they would welcome biometric security features like eye or fingerprint scanning if they were added to mobile banking services.

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US009049983B1

(12) **United States Patent**
Baldwin

(10) **Patent No.:** **US 9,049,983 B1**
(45) **Date of Patent:** **Jun. 9, 2015**

(54) **EAR RECOGNITION AS DEVICE INPUT**

(75) **Inventor:** **Leo B. Baldwin**, Seattle, WA (US)

(73) **Assignee:** **AMAZON TECHNOLOGIES, INC.**,
Reno, NV (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 789 days.

(21) **Appl. No.:** **13/083,330**

(22) **Filed:** **Apr. 8, 2011**

(51) **Int. Cl.**
H04N 7/18 (2006.01)
A61B 1/00 (2006.01)

(52) **U.S. Cl.**

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Assistant Examiner — Kate Luo

(74) *Attorney, Agent, or Firm* — Novak Druce Connolly
Bove + Quigg LLP

(57) **ABSTRACT**

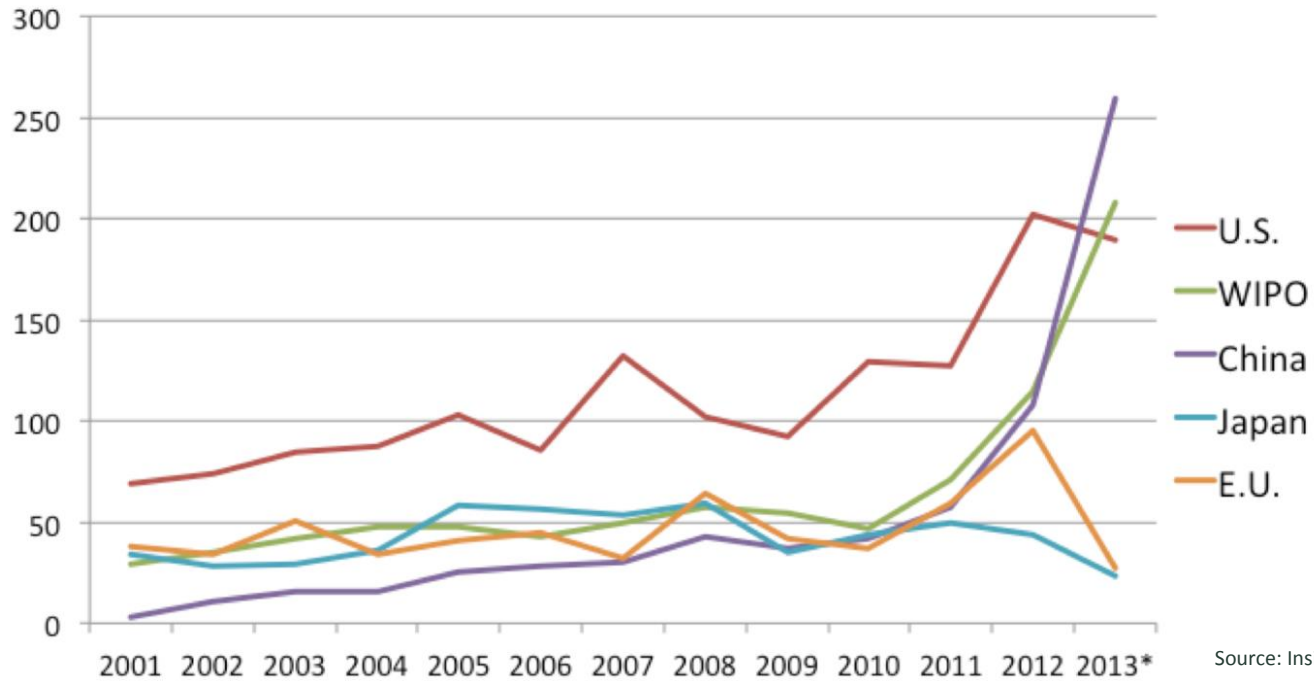
An electronic device can attempt to capture at least one image including at least a portion of a user's ear when the user utilizes the electronic device for certain purposes, such as to receive a call or listen to an audio file. In some embodiments,



Possible Impact

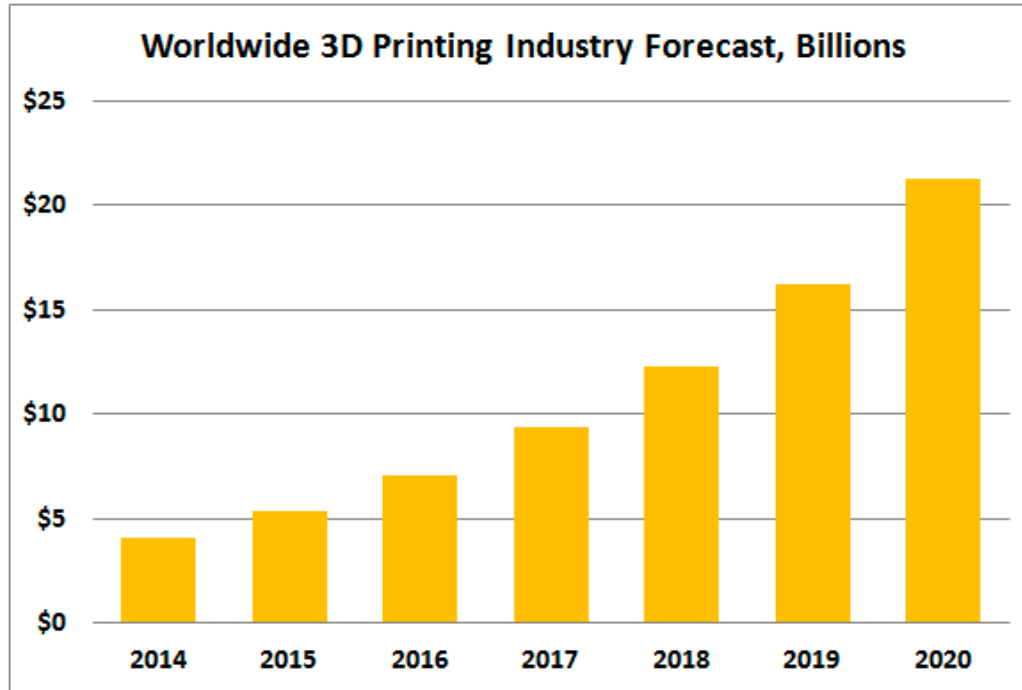
- No bricks & mortar means no need for first party property insurance
- No worries about slips and falls or labour relations
- Major boost to residential parcel delivery services
- Disputes in cyberspace? Its been decades and we still don't know:
- Which law applies to the e-transaction? Which authority has jurisdiction over the dispute? Which forum is competent to hear dispute? Is the decision enforceable?
- Does the world need international agreements and trans-border or dispute settlement mechanisms designed specifically for electronic transactions?.
- Still confusion over areas; taxation and customs duties, the legal status of e-signatures and the distinction between products and services.

Patent Applications for 3D Printing



Source: InsideCouncil.com

Why 3D Printing Is Important – \$14 Billion in Revenue



According to Wohlers Report 2015, the 3D printing industry is expected to grow by more than 31% per year between 2014 and 2020

This is big...

- Goldman Sachs recently cited 3D Printing as one of the top 8 trends poised to disrupt industry.
- Global market for 3D Printing \$2.2 billion in 2012, up 28.6% from 2011 and may reach \$6 billion globally by 2017.
- Boeing now prints 300 distinct airplane components at a cost savings of 25-50% per part with over 100,000 parts in the air.
- NASA and Aerojet Rocketdyne successfully tested a rocket engine injector made through 3D printing, calling the process “game-changing.” Took a 1 year lead time process down to 4 months with a 70% cost reduction
- The University of Edinburgh created a cell printer that prints living embryonic stem cells. The new printing method could be used to make 3D human tissues for testing new drugs, growing organs, or ultimately printing cells directly inside the body.

Revolutionizing Manufacturing

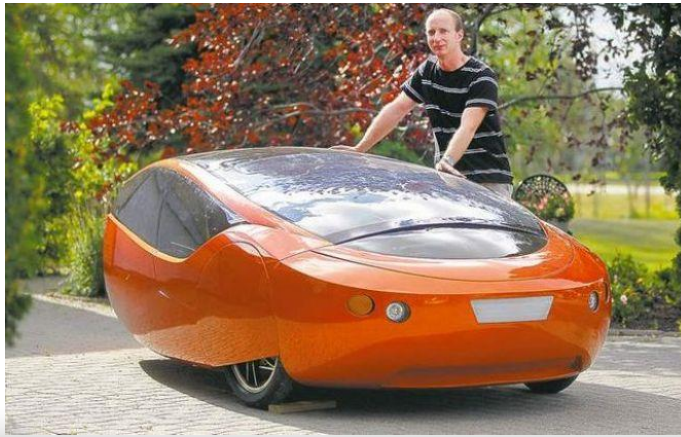
- Food: Anything that exists in liquid or powder form can be 3D printed. Printed food may be the next big conversation.
- Military: Military equipment is usually highly customized and replacements must be made quickly. A 3D gun has already been printed, so it's only a matter of time.
- Electronics: The size, shape, and materials used to make electronics make this industry a natural candidate for 3D printing.
- Toys: Home 3D printers and open source design might change the way children create and play.
- Automotive: OEM are already using the technology. Ford reportedly uses 3D printing to test parts. High-end and smaller auto companies will benefit first, though 3D printing could improve the efficiency of making replacement parts for any company.

Changing Medicine & Healthcare

- Bioprinting is one of the fastest-growing areas of 3D printing. The technology uses inkjet-style printers to make living tissue.
- Organovo plans to commercialize 3D-printed liver tissue in 2015. They have also partnered with the National Eye Institute and the National Center for Advancing Translational Sciences to print eye tissue.
- Block Cell Printing has 100% survival rate instead of the 50% to 80% that normally survive during the current process.
- Toronto's Mount Sinai hospital has developed a technique for recreating replacement joints using a patient's own tissues. They used a 3D printer to print a bone replacement using a calcium phosphate compound that has many of the same properties as the human skeleton.
- All of this naturally raises questions about the development of complex organs. We need to resolve moral, ethical and political concerns.

Meet the Urbee 2

- Hybrid is made entirely of 3D printed plastic components except for the engine (36-volt electric motor with ethanol engine) and base chassis.
- Curb weight of 1,200 pounds, the lead engineer estimates a trip from San Francisco to New York to consume only 10 gallons of pure ethanol.
- Safety? The Urbee 2 was designed to pass the tech inspection at Le Mans.



Reminds Us Why People Chose Medicine

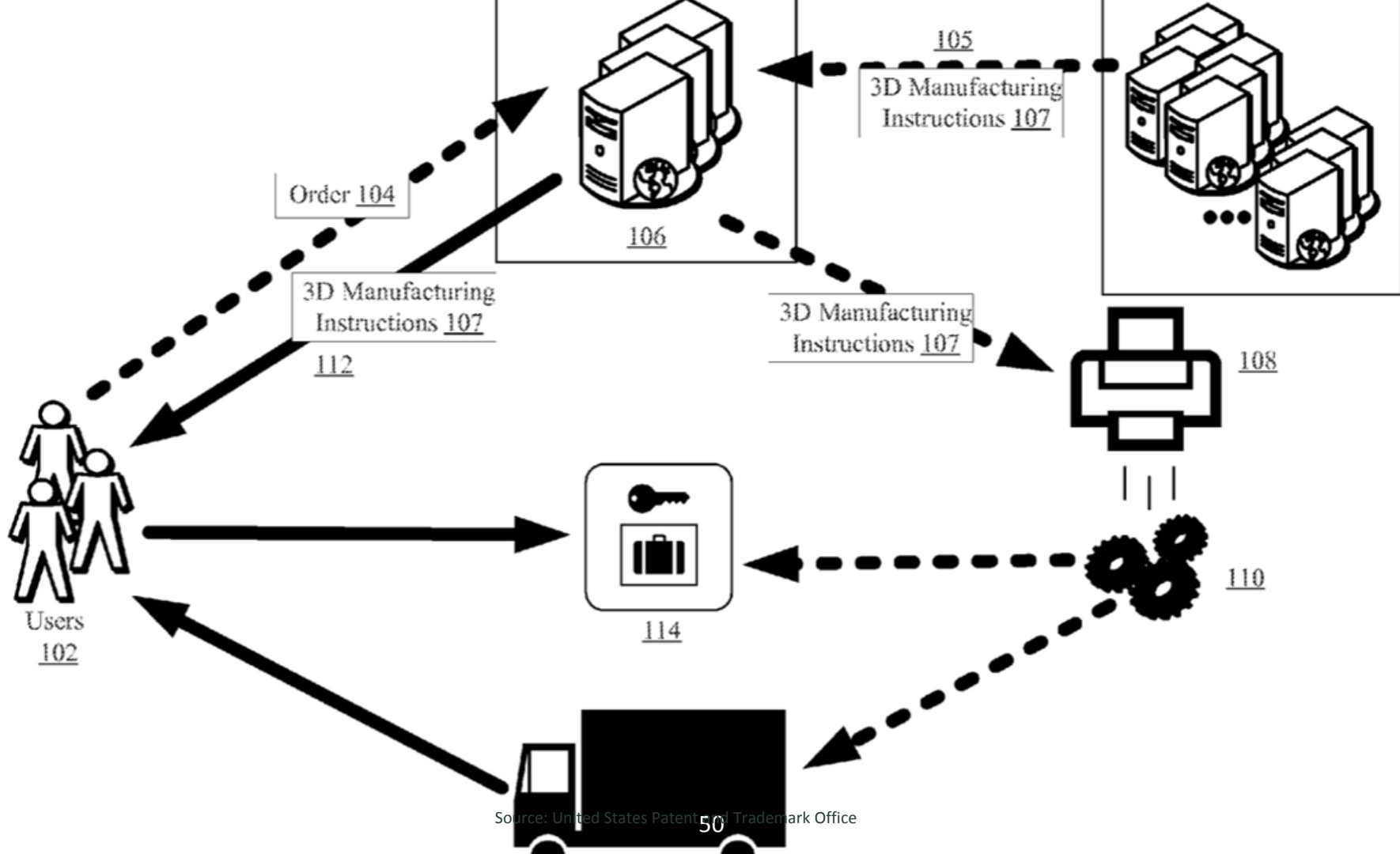
- 3D technology can be save lives around the world.
- The group Field Ready 3D print umbilical cord clamps for local hospitals in Haiti, helps the earthquake victims in Nepal, and is training RedCross rescue teams to use 3D printing technology.
- Children's Hospital of Illinois in Peoria -#3 on the list of most technologically advanced hospitals in the world.



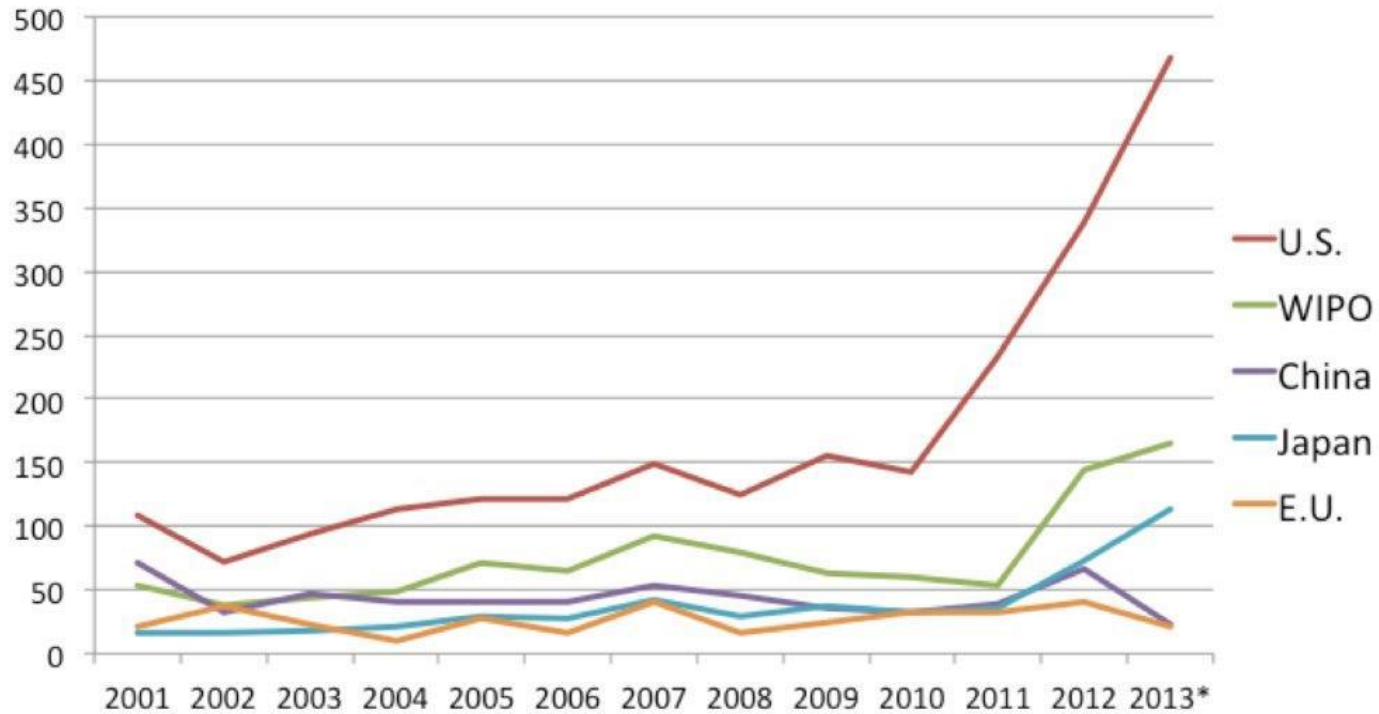
Lower the Cost-Remove the Barriers for Prosthesis

- The Openhandproject is a group of volunteers who use open source software to create 3D printed prosthetic hands. The prosthetics are free or if people can afford it cost between \$80 – \$150.
- Made 300 hands in 2015
- “Iron Man” prosthetic forearm and hand developed by Limitless Solutions for \$300.





Patent Applications for Wearable Technologies



What is Wearable Technology?

The Internet of Things (IoT):
In 2014 there were **12B** Connected devices
worldwide
Experts claim there will be **50B by 2020**

- Clothing and accessories incorporating computer and advanced electronic technologies, worn on and in a person's body that:
- Collect data about the wearer: motion, temperature, effort, sleep, etc.
- Store, analyze and/or transmit data
- Charge or store electronic devices
- Function as computers, cameras, music players and phones
- Health tracking
- Remote patient monitoring
- **CONNECTED DEVICES ARE PART OF THE INTERNET OF THINGS**

What is Intelligent Infrastructure?

- "Intelligent infrastructure has attached or built-in components that are able to collect and transmit information about the state of the infrastructure to a central computer, and in some cases receive back instruction from the computer, which triggers controlling devices."
- Smart Structures-bridges& tunnels equipped with sensors remotely measure strain, vibration, pressure, tilt, inclination, displacement, crack activity, humidity and temperature. I-35 in Minneapolis now has 500 sensors
- Intelligent Transportations Systems-V2V and V2I technology for auto-PTC for trains –sensors, radars, on board short range radios let operators "see around" corners and "through" other vehicle's-in some cases automatically reroute, slow down or shut down
- Smart Cables & Pipes-provide real time down hole data-facilitate high speed data transfer. Increase efficiency and improve safety

Biggest Impact

- Smarter transportation – Drivers will make decisions on routes and traffic conditions based on information their cars receive from road sensors. Vehicles "talk" to each other to reduce the risk of accidents;
- Smarter energy - by 2020, it is predicted that over 60% of connected devices will be related to monitoring or delivering energy;
- Smarter manufacturing - including real time inventory systems and pre-emptive maintenance of machines;

Biggest Impact

- Smarter payments - using NFC (near field communication) and other technology in devices;
- Smarter homes - with connected technology monitoring and controlling lighting, security systems, temperature, humidity, energy consumption, domestic appliances, watering systems, etc
- Smarter healthcare - remote patient monitoring in the US is predicted to save an average of US\$12,000 per patient and significantly reduce hospital-acquired diseases.
- Smarter Governments sensors provide alerts about failed street lights, leaks in water systems, used in traffic control, fighting forest fires, and landslide detection.

A Doctor In Your Pocket



- American Well, Teladoc, MDLive, Doctor On Demand “Appsthat lets you instantly connect with licensed professionals via video chats and audio calls, provides access to medical advice and prescriptions based on your particular symptoms without you ever having to step out the door. “
- A standard 15-minute consultation is \$40
- The most common ailments for online patients are sinus infections, sore throats, flu, bronchitis and urinary tract infections.
- “We averaged a wait time over the last three years of three minutes to see a doctor... There aren't many places in America where you can see a doctor in three minutes.”
- 29 states mandate that insurance companies cover telehealth visits just as they do in-person appointments, regulations are inconsistent nationwide.

Ingestible Computers for Medical Monitoring

- Tiny sensors and transmitters placed in pills some the size of a grain of rice
- Monitors how a patient's body is responding to medicine
- Detects the person's movements and rest patterns
- Once it hits the bottom of the stomach, it sends information to a cellphone app through a patch worn on the body
- Goes thru the body in 24 hour
- Cost: \$46...approved by the FDA-Proteus Digital Health
- Wall St Journal (June 8, 2014): PillCam Colon, created “a capsule the size of a large vitamin [that] travels through a patient's digestive system over the course of several hours, wirelessly transmitting video images to an external data recorder.” “Colon-cancer screening may soon become less invasive, more accurate—and more prevalent.”
- FDA approved the device in February 2014 for patients who have received incomplete colonoscopies.



First Sign-Smart Hair Clip

Smart Hair Clip



- Tiny accessory clips on your hair or clothing
- Knows when you could be in danger and sends for help
- Contains a gyroscope and an accelerometer, that detect physical assault like slapping, punching, or aggressive movements
- Microphone in the clip starts recording, and the First Sign mobile app uses Bluetooth to access your smartphone's GPS, camera and microphone to begin gathering of evidence
- After 15 seconds the information is then sent to a monitoring station and alert nearby emergency contacts and first respondents to your current location

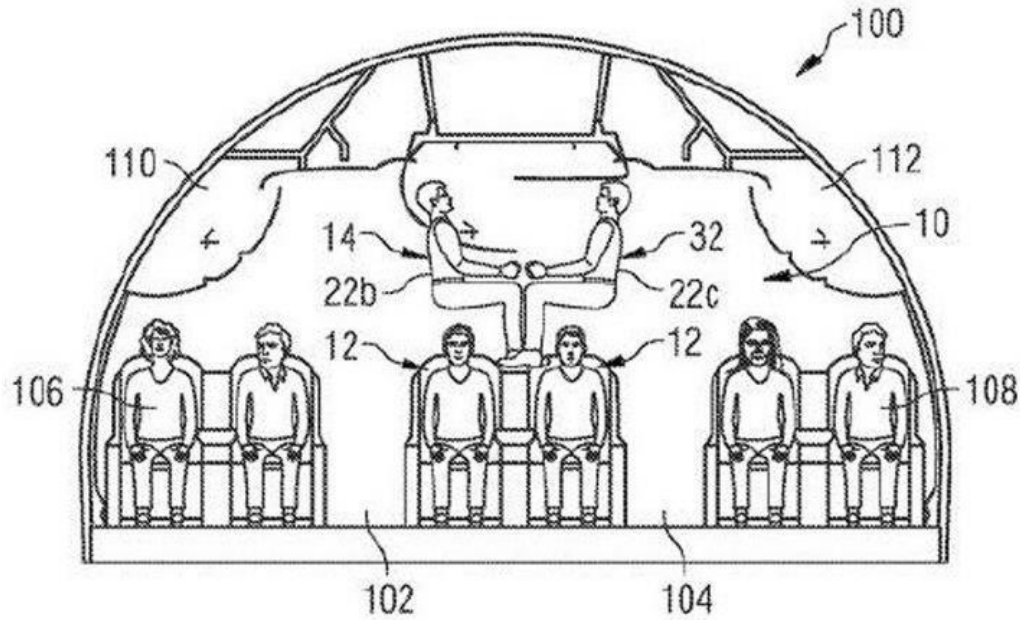
The Love Detection System-An Infidelity Detecting Mattress

- Contains 24 ultrasonic sensors which "sense any suspicious activity" and immediately tells the owner via a smartphone notification when the mattress is in use and how many people are on it.
- The sensors generate a 3D map of the bed in real time with highlights on the areas experiencing the greatest levels of pressure. Any movements are also detected and recorded.
- The Smarttress was developed by the Spanish mattress market Durmet after the Ashley Madison hack revealed that Spain has the highest number of cheating spouses in Europe. The company's slogan is "If your partner isn't faithful at least your mattress is
- " All purchases will be handled with "the utmost confidence".
- Cost \$2,700 (USD)

Legal Implications

- Patent/Intellectual property issues
- Product liability-is software a product or service?
- What risk transfer language is in the sale or licensing agreement?
- Are the courts up to the challenge of new technology?
- Automated contracts: What about when machines buy and sell from each other? The rise of virtual stores in Asia –the refrigerator loaded with credit card data and list of desired items buys its own groceries
- Data Ownership/Access/Privacy
- Employment and labor law issues
- 2011 NFL collective-bargaining agreement, Article 51, Section 13(c):
"The NFL may require all NFL players to wear during games and practices equipment that contains sensors or other non-obtrusive tracking devices for purposes of collecting information...."

Mezzanine Seating?!



“If I had listened to my customer, I would have developed a faster horse.”

Henry Ford



Thank you!