

INVENTIONS IN THE 21ST CENTURY

INVENTION is the act of bringing ideas or objects together in a novel way to create something that did not exist before.¹ Inventions can help improve our lives and they are often the solution to problems.²

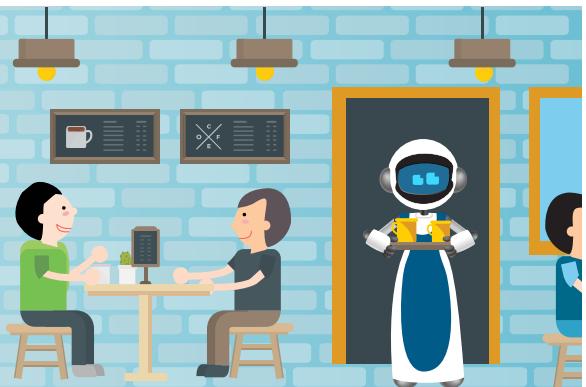
An international organisation that oversees inventions is the World Intellectual Property Organization (WIPO). Its mission is to lead the development of a balanced and effective international intellectual property system that enables innovation and creativity for the benefit of all.³ Here's a look at some 21st century inventions:



ROBOTS IN THE WORKPLACE

Advancements in technology have led to highly intelligent robots or machines that are increasingly used in the workplace. The robots operate automatically without the help of humans and some can even understand human behaviour and make decisions.⁴

To help with manpower shortage, a Singapore restaurant utilises Lucy, a robot, to deliver food to the tables.⁵



NEEDLE-FREE VACCINATIONS

The administration of vaccines usually involves the needle and syringe system that was introduced in the mid-1800s.⁶ There are now several alternatives to administer vaccines that do not use needles, making the process less scary and painful.

Nanopatch



Needle-free vaccinations, such as Nanopatch, work by using vaccine-coated microprojections that penetrate the skin to deliver the vaccine.⁷

Another method is the use of a high speed jet of air to propel the vaccine into the skin or muscle.⁸



AUTONOMOUS VEHICLES

Since Google unveiled its driverless-car technology in 2010, several autonomous vehicles have been tested on the roads.

An autonomous vehicle is a self-driving vehicle that uses sensors and software to navigate the roads.⁹ Benefits include improved road safety and fuel efficiency, lower transport costs, and savings in time.¹⁰



3D PRINTERS

The idea of 3D printing was first conceptualised by Chuck Hull in 1983 as a quick way to build prototypes.¹¹

3D printing works by printing layers of materials to create solid objects, such as glassware and jewellery, in a process known as "additive manufacturing".¹²

Technological advancements in the 21st century have made 3D printers more affordable for personal use. With 3D printers, anyone can create almost anything from the convenience of their own home.



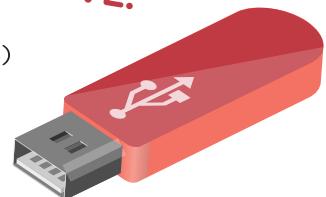
In 2005, Skype introduced a new way to make calls. It allowed people to make video calls, which meant that people could see the other person at the end of the line.¹³

Video calls have made face-to-face communication possible and people around the world can communicate easily and freely.

IN SINGAPORE, WE CAN BE PROUD OF THE THUMBDRIVE.



- The ThumbDrive is a thumb-sized Universal Serial Bus (USB) data storage device that revolutionised the way digital data was stored and transferred between computers.
- It was invented by Trek 2000 International Limited, a Singapore technology company.¹⁴



INFORMATION LITERACY TIP:

Searching effectively

BROADENING AND NARROWING

your search terms can help you find the right information. This is a good search strategy for conducting research. Here are some suggestions for searching on **inventions**:

Use **broader terms** to get an overview of the topic. For example:

driverless cars / autonomous vehicles / self-driving cars 

Use **narrower terms** to find specific information about the topic. For example:

"Social impacts **AND** driverless cars **in** 2050"

Area of research

Aspect of invention

Time period: Future

Disclaimer: This publication is meant for educational purposes only. The inventions listed here represent examples of 21st century inventions and are by no means exhaustive. The information presented is accurate at the time of production.

REFERENCES:

- 1 Burke, J. (2016). Invention. Retrieved from: <https://global.britannica.com/technology/invention-technology>
- 2 WIPO (2007). Learn from the past, create the future: Inventions and Patents. Retrieved from: http://www.wipo.int/edocs/pubdocs/en/patents/925/wipo_pub_925.pdf
- 3 WIPO (2016). What is WIPO? Retrieved from: <http://www.wipo.int/about-wipo/en/#whatwedo>
- 4 "robot." Britannica Junior Encyclopedia. Britannica Online for Kids. Encyclopædia Britannica, Inc., 2016. Retrieved 26 Sept. 2016 from: <http://kids.britannica.com/elementary/article-9353723/robot>
- 5 Ang, B. (2016, Feb 7). Robot Lucy at your service at newly opened Rong Heng Seafood. The Straits Times. Retrieved from: <http://www.straitstimes.com/lifestyle/food/robot-lucy-at-your-service-at-newly-opened-rong-heng-seafood>
- 6 ScienceMuseum (n.d.). Hypodermic Syringe. Retrieved 26 September 2016 from: <http://www.sciencemuseum.org.uk/broughttolife/techniques/hypodermicsyringe>
- 7 Vaxxas (n.d.). Nanopatch technology. Retrieved from: <http://www.vaxxas.com/nanopatch-technology>
- 8 Khalik, S. (2014). No more jitters as jabs go needle-free in Singapore. The Straits Times. Retrieved from: <http://www.straitstimes.com/singapore/health/no-more-jitters-as-jabs-go-needle-free-in-singapore>
- 9 Google (n.d.). Navigating city streets. Retrieved from: <https://www.google.com/selfdrivingcar/>
- 10 Tan, C.K. & Tham, K.S. (2014). Autonomous Vehicles, Next Stop: Singapore. Retrieved from: https://www.lta.gov.sg/ltacademy/doc/J14Nov_p05Tan_AVnextStepSingapore.pdf
- 11 Sparkes, M. (2014, 18 June). We laughed, we cried, we stayed up all night imagining. The Telegraph. Retrieved from: <http://www.telegraph.co.uk/technology/news/10908560/We-laughed-we-cried-we-stayed-up-all-night-imagining.html>
- 12 Crawford, S. (n.d.). How 3-D printing works. Retrieved from <http://computer.howstuffworks.com/3-d-printing.htm>
- 13 McDonald, A.B. (2005). Make free video calls with Skype's new software. The Washington Post from: <http://www.washingtonpost.com/wp-dyn/content/article/2005/12/01/AR2005120100049.html>
- 14 Singapore Infopedia. (2010). Trek 2000 and the ThumbDrive. Retrieved from: http://eresources.nlb.gov.sg/infopedia/articles/SIP_1071_2010-03-23.html