

Engineering a Better World

The Pivotal Role of Engineering in Our Lives.



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Introduction

Take a glance around you, wherever you are and whatever activity you are doing you are surrounded by objects that have been engineered. For example, the Dyson vacuum offers effortless cleaning solutions to millions of homes. The Nutri Bullet delivers instantaneous smoothies to keep our health tip top. Coffee machines produce artisan style drinks in the home at the touch of a button.

Now all of these are great inventions carefully engineered to deliver convenience and affordability to their target customer, but they don't necessarily make a meaningful difference.

What's truly fascinating is the concept that engineering can play a much more significant role solving key challenges that threaten our planet. This includes pollution and o-zone damage, improved health and well-being and the potential for achieving sustainability for future generations by protecting our environment through eco-friendly solutions.

When you combine human intelligence and curiosity, with the limitless potential of technology and genuine desire to make the world a better place it really is possible to engineer a better world.

How do Engineers Change the World for the Better?

From George Manby inventing the fire extinguisher in 1818, Frank Whittle's jet engine in 1937 and Abiocr's artificial heart in 2001 engineering has been improving the world we live in for centuries. But how have some of these inventions changed the world for the better?

Global Health

- Recently I have assisted my parents in looking for the best stair lift for my grandad following a mild stroke. Since the stair lift invention in the 1920's engineers have evolved this piece of equipment to make it more durable and also safer for the user. This is demonstrated by the fact that many stair lifts nowadays even have a seatbelt feature to reduce the risk of accidentally falling off.

- The X-ray was invented in 1895 by the German physics professor Wilhelm Conrad Roentgen. This piece of equipment, used mainly by doctors is able to transmit light rays through the skin to observe any broken bones.

Protecting the Environment

- Aviation engineers have created more efficient and eco-friendly aircraft. For example, Boeings 787 has a very high range of 15,372 km for the small amount of fuel consumption of 30,000kg compared to other commercial planes.
- Automotive engineers such as Elon Musk of Tesla have created the electric car revolutionising the way people travel and removing the huge environmental impacts of CO2 emissions and city noise pollution.

Renewable Energy

- The Three Gorges Dam in China was a great success for engineers when it opened in 2008. The 7,660ft long dam is eco-friendly because the water flows through the vast wall, turns several turbines which are connected to motors and so generates a large amount of electricity. So much energy is produced that it is able to power thousands of homes across the nation.
- Solar panels are another example of renewable energy that has huge global potential. These solar panels can be grouped together to form a solar farm which then is able to produce great quantities of electricity.

What can we do to Engineer a Better World?

There are many challenges ahead if we want to truly engineer a better world. I encountered the three issues below recently during studies, visits and social activities. By including them I aim to highlight the potential engineering offers to deliver a better world for everyone on the planet.

The Future for Global Health & Transforming Lives

- According to the World Health Organisation a staggering 2.3 billion people in the world do not have access to a toilet placing their health at huge risk many times a day. If Dyson can reinvent the Hoover just imagine if future engineers can reinvent the toilet creating cost effective, eco-friendly solutions that deliver these basic facilities for all.
- During a recent visit to the Science Museum I explored the Engineer Your Future exhibition. Here I saw pioneering engineers tackling huge concepts such as how the bionic hand can pick up a piece of paper mirroring the human hand.

Future Prevention of Natural Disasters

- Whilst at the Science Museum I was also introduced to the concept of how tsunami effects can be prevented through effective architectural engineering. Underground flood distribution and engineered systems to stop the tidal effects have been brought together into exciting new concepts.

It struck me that engineering has the potential to tackle or reduce the impact of natural disasters and transform the lives of disabled people.

Protecting our Future Natural Resources & Environment

- On average, according to Conserve Energy Future every 2 seconds we cut down an area of forest the size of a football pitch. Global warming is a key result of deforestation and this creates damage to our ozone layer enabling the sun's rays to melt the ice in the Arctic much more easily. Eventually species become at risk of extinction due to their habitats being destroyed threatening our entire ecosystems. Geo engineering is the relatively new concept aimed at delivering a 360 degree approach to tackling climate change and protecting the earth's inter linked ecosystems.

Conclusion

Today's engineers are rapidly changing how we live and conduct our daily lives. We have explored some recent innovations that illustrate how engineering can play a key role in creating a better world as well as opportunities for the future. With investment in research and the development, continued education in schools and universities' developing the next generation of engineers, the possibilities for engineering a better world for countless generations in the future are endless. Clearly there's a lot to do, thank goodness for engineering.

References & Resources

My research consisted of the following websites, museums and books.

- The Science Museum – Exhibition Road, South Kensington, London, SW7 2DD
- The Design Museum – Kensington High Street, London, W8 6AG
- World Health Organisation - <http://www.who.int/en/>
- Conserve Energy Future - <https://www.conserve-energy-future.com/>
- The Engineering Book – Marshall Brain published by Sterling.
- The World Greatest Civil Aircraft – Paul E. Eden published by Amber Books.
- What the British Invented – Gilly PickUp published by Amberley Publishing.