Design Research Seminar

Products from popular science fiction movies

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APPROVAL SHEET

This project report entitled "Products from popular science fiction movies", by Niketh SJ is approved in partial fulfillment of the requirement for Master of Design degree in Mobility and Vehicle Design. It has been examined and is recommended for approval and acceptance.
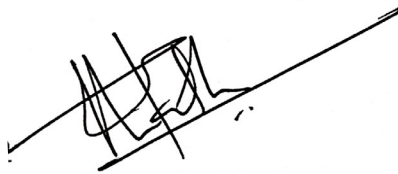

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Date   : 22/02/2019

DECLARATION

I declare that this written report represents my own idea in my own words, and where others' ideas or words have been included, I have mentioned the original source.

I also declare that I have adhered to all principles of academic honesty and integrity and have not falsified, misinterpreted or fabricated any idea, data, facts or source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the institute and can also evoke penal action from the source from which proper permission has not been taken, or improperly cited.

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ACKNOWLEDGEMENT

ABSTRACT

Science fiction movies have always been pushing the limits of fantasy and creativity while keeping the viewer engaged instilling a feeling in him that whatever is shown has a very practical possibility of happening. Throughout the years, numerous products and technology have been showcased in sci-fi movies of which some have become a reality through advancements in science and technology, while some still remain as ideas alone.

This qualitative study deals with finding out different interesting products which has been portrayed in sci-fi movies throughout the years via observational research. The function of these products, how they function, etc are compared with their real world counterparts (if any) and an analysis is also done on the context (social, political, technological, environmental, etc) which gives us an idea of how major world events might have aided in the thought behind coming up with these sci-fi products. This research and analysis attempts to derive where these products would fit in when compared with Maslow's hierarchy of needs.

Keywords:
Science fiction, futuristic products, context analysis, hierarchy of needs

CONTENTS

1. SYNOPSIS

1.a Introduction

Science fiction is a genre of fiction which deals with imaginative and futuristic concepts, inclusive of space exploration, advanced science and technology, time travel, extra terrestrial life, etc. It explores how different scientific innovations can affect the world. There were primarily three mediums by which science fiction and its influence grew - books, film and television. Of these three, science fiction films have been the most influential as it paints a vivid visual imagery of the imaginative worlds which were conceptualized. Although television has huge influence now, earlier this was not the case. If we look back to the number of sci-fi television shows which came out during the initial boom of sci-fi, its very less comparable to the films that were made. This study deals with the medium of films.

Science fiction movies have always portrayed thought provoking concepts by pushing the limits of human imagination. Movies like Star trek, Star wars, E.T, Frankenstein, The Time machine, etc have all presented the audience with different scenarios of a possible alternate time-line or predicted a very interesting future. These visionary movies are usually visualized through highly imaginative settings, expert film production design, advanced technology gadgets (i.e., robots and spaceships), futuristic scientific developments, or by expertly crafted special effects. It is a genre that utilizes predictions which are based on scientific theories but have not yet been accepted nor proven practical by science. These movies tend to explore themes like artificial intelligence, human condition, survival scenarios, political, social and philosophical issues, etc.

The technology and possibilities shown in these movies have turned inspirational in the development of real world technology and have quite often changed the course of human history. The products showcased in these movies like the touchscreen interfaces from Minority report (2002), wearable smart goggles from Back to the future II (1989), video calls from 2001: A space odyssey (1968) have all turned into reality over the course of time.

This project tries to collate technology and products that have been used in several popular science fiction movies (between 1950 and 1980) and develop a link between the context which led to its evolution, the product scenario predicted in the movies and the present real world scenario.

1.b Aim

The aim of this project is to conduct a study to evaluate the various products shown in popular science fiction movies, try and understand the context of their development, and to assess these products based on human needs and preferences.

1.c Objective

i.   Analyse and plot sci-fi movies based on the time they were released compared to the time showcased in those movies.
ii. Analyse and assess products/services shown in sci-fi movies to highlight the needs that are addressed and plot them based on Maslow's hierarchy of needs (Maslow's hierarchy of needs, n.d).
iii. Compare products from sci-fi movies with its real-world counterparts (if any) taking into account similarity in function, when they were predicted for and their real-world mention.

2. METHODOLOGY

i.   Generate the list of sci-fi movies which have more received than 25000 reviews on Internet Movie Database (IMDB) till December 2018. The synopsis and plot line of each movie is carefully analysed to understand the time period in which the movie was set in and a visualization chart is developed based on this data.

ii.   Generate a sub-list of movies falling between 1950-80. This time period is selected as it was the most influential for sci-fi. The context was rich with post-world war events, the space race, the cold war, etc. These movies are watched and a visual study of the products are done, and they are documented. These products are then analysed and assessed depending on what needs they cater to and are plotted based on Maslow's theory (Maslow's hierarchy of needs, n.d).

iii. Two movies from each decade between 1950-80 which showcase the maximum number of sci-fi products are selected and a comparison is made between those products and their real-world counterparts with reference to journals, blogs, patent documents, etc.

3. MOVIES

3.a Master list of sci-fi movies

The master list is a compilation of sci-fi movies which have received more than 25000 reviews (combined number of critics and regular viewers). This list contains a total of 663 sci-fi movies spanning from Metropolis (1927) to Black Mirror: Bandersnatch (2018). The master list was used to develop a visualization chart in which the year in which a movie came out is plotted against the time-period which is portrayed in the movie. This gives a look into how many movies have predicted future scenarios, and how many have shown an alternate present.

3.b Shortlisted sci-fi movies

From the master list, a set of movies which were released between 1950-1980 were shortlisted to do a detailed study about the products showcased. These were the decades which saw huge leaps when it came to advancements and developments in science and technology. The development of microchips, passenger jets, video recorders, hovercraft, optic fibre, LASER, computers, CD-ROM, etc, and the space race happened between these decades, which influenced the sci-fi genre in a huge way. Sci-fi as a genre started gaining huge popularity during these decades.

The 1950-80 list has a total of 34 movies - analyzed and plotted based on Maslow's hierarchy of needs:

The Day the Earth Stood Still (1951)
The War of the Worlds (1953)
20,000 Leagues Under the Sea (1954)
Invasion of the Body Snatchers (1956)
Forbidden Planet (1956)
Plan 9 from Outer Space (1959)
The Time Machine (1960)
Fahrenheit 451 (1966)
Planet of the Apes (1968)
2001: A Space Odyssey (1968)
Barbarella (1968)
Beneath the Planet of the Apes (1970)
THX 1138 (1971)
The Andromeda Strain (1971)
Escape from the Planet of the Apes (1971)
The Omega Man (1971)
A Clockwork Orange (1971)

Solaris (1971)
Conquest of the Planet of the Apes (1972)
Soylent Green (1973)
Battle for the Planet of the Apes (1973)
Westworld (1973)
Sleeper (1973)
Logan's Run (1976)
Star Wars: Episode IV - A New Hope (1977)
Close Encounters of the Third Kind (1977)
Superman (1978)
Invasion of the Body Snatchers (1978)
Phantasm (1979)
Mad Max (1979)
Alien (1979)
Stalker (1979)
Moonraker (1979)
Star Trek: The Motion Picture (1979)

Final list of movies for product and technology comparison with real world counterparts:

1951-60 : The Day the Earth Stood Still (1951), Forbidden Planet (1956)
1961-70 : 2001: A Space Odyssey (1968), Barbarella (1968)
1971-80 : Star Wars: Episode IV - A New Hope (1977), Star Trek: The Motion Picture (1979)
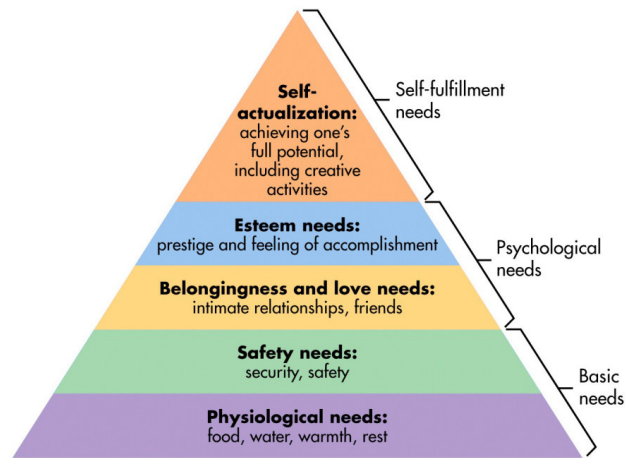
4. OBSERVATION & ANALYSIS

The 1950-80 list of sci-fi movies were watched and re-watched to populate a list of products being used in them which has a significant technology related with it.

4.a Maslow's hierarchy of needs
Maslow's hierarchy of needs is a motivational theory in psychology proposed by Abraham Maslow in 1943. It comprises a 5-tier model of human needs, often depicted as a hierarchical pyramid. Maslow stated that humans are constantly motivated to achieve certain needs and some always precede the other. Basic physiological and safety needs comes first, followed by psychological needs and self fulfillment needs (Maslow's hierarchy of needs, n.d).

Analysis
The products shown in these movies serve the needs, wants and aspirations of humans portrayed in a sci-fi scenario. As Maslow's theory deals with classifying human needs, it is well suited as a tool for analysis in this context. The products shown in 34 sci-fi movies between 1950-80 from the master list were plotted based on this theory coined by Maslow. The classification is done on basis of Maslow's original 5-part hierarchy.

Img 1: Maslow's hierarchy of needs

Table 1. Products classified based on Maslow's heirarchy

	Survival	Safety	Belongingness & Love	Esteem	Self Actualization
1. THE DAY THE EARTH STOOD STILL (1951)		Flying saucer Healing bay		Gesture controlled light Automatic doors KL93 plastic Gort - humanoid robot	
2. THE WAR OF THE WORLDS (1953)		Force field Scanning probe		Heat ray Magnetic levitation	
3. 20,000 LEAGUES UNDER THE SEA (1954)		Underwater suit Underwater fishing device		Electric repellent Nautilus	
4. FORBIDDEN PLANET (1956)	Food analyzer and replicator	Deceleration booths		Robby the Robot Disintegration beam Gesture controlled doors Automatic doors Hologram C-57D (Flying saucer) Blaster handgun Blaster cannon EMP weapon	

	Survival	Safety	Belongingness & Love	Esteem	Self Actualization
5. INVASION OF THE BODY SNATCHERS (1956)	Growth pods				
6. PLAN 9 FROM OUTER SPACE (1959)	Flying saucer			Electrode guns	
7. THE TIME MACHINE (1960)			Audio recorded ring	Atomic satellite	Time machine
8. FAHRENHEIT 451 (1966)				Flight suit	
9. PLANET OF THE APES (1968)	Hibernation pod	Spaceship			
10. 2001: A SPACE ODYSSEY (1968)	Space station Colony outpost Hibernation pod	Spaceship Space pod	Picture phone	Grip shoes Voice-print id Touchscreen tablets	HAL 9000
11. BARBARELLA (1968)	Wind-craft	Spaceship	Video call Tongue box	Blasters Excessive machine Positronic ray Transport tube Atom transmitter Brain wave detector	Alphy - AI
12. BENEATH THE PLANET OF THE APES (1970)				Doomsday bomb	
13. THX 1138 (1971)	Underground city Birth chamber	Bio-sensors	Confession chamber	Doomsday bomb Mindblock Hologram Hi-speed elevators Androids Masturbation device	
14. ESCAPE FROM THE PLANET OF THE APES (1971)	Space shuttle				
15. THE OMEGA MAN (1971)					

	Survival	Safety	Belongingness & Love	Esteem	Self Actualization
16. THE ANDROMEDA STRAIN (1971)		Thermograph scan Body analyzer	Video conference	Laser weapon Location tracking Finger print analyser Pressure sensing bed Light pen Micro scanner	
17. A CLOCKWORK ORANGE (1971)					
18. SOLARIS (1971)	Space station		Video call		
19. CONQUEST OF THE PLANET OF THE APES (1972)				Authenticator	
20. SOYLENT GREEN (1973)				Riot control vehicle Gesture control door Dying chamber	
21. BATTLE FOR THE PLANET OF THE APES (1973)					
22. SLEEPER (1973)	Cryosleep	Hydrovac suits		Robot servant Robot dog Debris disposal chamber Cloth maker Robot salesman Jet-pack Rotor-pack	AI assistant
23. WESTWORLD (1973)				Androids Robotic animals	
24. LOGAN'S RUN (1976)		Domed city Instant healer	Palm crystal	Proximity scanner Phaser High speed shuttles Jet-pack Blaster handgun Laser cutter Freezing gun	AI Surrogate interrogation

	Survival	Safety	Belongingness & Love	Esteem	Self Actualization
25. STAR WARS: EPISODE IV - A NEW HOPE (1977)	Moisture vaporator Space ship Land speeder	Planetary shield Shield generators R2D2	Hologram C3PO	X-wing TIE fighter Millennium Falcon Hyperdrive EMP gun Light saber Death star Blasters	Clones
26. CLOSE ENCOUNTERS OF THE THIRD KIND (1977)	UFO				
27. SUPERMAN (1978)		Space ship	Hologram		
28. INVASION OF THE BODY SNATCHERS (1956)	Growth pods				
29. PHANTASM (1979)				Killer drone	
30. MAD MAX (1979)					
31. ALIEN (1979)	Hibernation pods	Body scanner		Nostromo - Space towing vehicle Bio sensing gun	Android AI Mother
32. STALKER (1979)					
33. MOONRAKER (1979)				X-ray live scanner Mini camera Space city Dart gun Phaser gun Laser weapon	
34. STAR TREK: THE MOTION PICTURE (1979)	Space station	Bioscanner Shield generator Shuttlecraft Transport pod	Video call	Photon torpedo Phasers Battle cruiser Starship Enterprise Transporter beam Thruster suit	Android

4.b Product comparison

Two movies belonging to each decade between 1950 and 1980 which showcase the most number of sci-fi products were selected for further detailed analysis of their products.

Table 2. Products and real-world equivalents in The Day the Earth Stood Still (1951)

THE DAY THE EARTH STOOD STILL (1951)

Product shown in movie	Year shown in movie	Real product/attempt	Year of invention
Flying saucer	1951	'Project 1794'	1950s
		Avro Canada VZ-9	1959
Gesture controlled light	1951	Gesture control technology	1974
Gort - humanoid robot	1951	Honda E-series	1980s
		Honda P-series	1990s
		ASIMO	2000
		HRP-4	2009
Automatic doors	1951	Automatic sliding doors	1954
KL93 plastic	1951	Aramid polymer	1960s
Healing bay	1951	nil	nil

Table 3. Products and real-world equivalents in Forbidden Planet (1956)

FORBIDDEN PLANET (1956)

Product shown in movie	Year shown in movie	Real product/attempt	Year of invention
Food analyzer and replicator	23rd cent.	Food printing using 3d printers	2005
Deceleration booth	23rd cent.	nil	nil
C-57D	23rd cent.	Avro Canada VZ-9	1959
Vertical takeoff/landing	23rd cent.	VTOL technology	1970s
Blaster handgun	23rd cent.	nil	nil
Robby the Robot	23rd cent.	ASIMO	2000
Disintegration beam	23rd cent.	nil	nil
Gesture controlled doors	23rd cent.	Gesture control technology	1974
Automatic doors	23rd cent.	Automatic sliding doors	1954

Table 4. Products and real-world equivalents in 2001: A Space Odyssey (1968)

2001: A SPACE ODYSSEY (1968)

Product shown in movie	Year shown in movie	Real product/attempt	Year of invention
Space station	2000	Salyut 1	1971
Moon Colony outpost	2000	nil	nil
Hibernation pod	2001	nil	nil
Grip shoes	2000	Capsule boot and carpet capable of resisting zero gravity walking	2012
Spaceship	2001	Space shuttle Columbia	1981
EVA pod	2001	nil	nil
Picture phone	2000	Video calls	1980s
Voice-print id	2000	Speech recognition	1971
HAL 9000	2001	AI	1956
Touchscreen tablets	2001	Microsoft tablet	2000

Table 5. Products and real-world equivalents in Barbarella (1968)

BARBARELLA (1968)

Product shown in movie	Year shown in movie	Real product/attempt	Year of invention
Spaceship	n.a	Space shuttle Columbia	1981
Wind-craft	n.a	Sailing carriage	552 AD
Transport tube	n.a	nil	nil
Blasters	n.a	nil	nil
Excessive machine	n.a	nil	nil
Positronic ray	n.a	nil	nil
Video call	n.a	Video calls	1980s
Tongue box	n.a	Ili wearable translator	2016
Alphy - AI	n.a	AI	1956
Atom transmitter	n.a	nil	nil
Brain wave detector	n.a	nil	nil

Table 6. Products and real-world equivalents in Star Wars: A New Hope (1977)

STAR WARS: EPISODE IV - A NEW HOPE (1977)

Product shown in movie	Year shown in movie	Real product/attempt	Year of invention
Moisture vaporator	0 BBY	Desert water harvester	2017
Planetary shield	0 BBY	nil	nil
Shield generators	0 BBY	nil	nil
Space ship	0 BBY	Space shuttle Columbia	1981
X-wing	0 BBY	nil	nil
Land speeder	0 BBY	Aero-X	2017
TIE fighter	0 BBY	nil	nil
Millennium Falcon	0 BBY	nil	nil
Hyperdrive	0 BBY	nil	nil
EMP gun	0 BBY	CHAMP - US Military	2012
Light saber	0 BBY	nil	nil
Death star	0 BBY	nil	nil
Blasters	0 BBY	nil	nil
3D light projection	0 BBY	Volumetric display	2018
C3PO	0 BBY	ASIMO	2000
R2D2	0 BBY	Sphere - Astromech droid	2002
Clones	0 BBY	nil	nil
Training drone	0 BBY	Parrot AR drone	2010

Table 7. Products and real-world equivalents in Star Trek: The Motion Picture (1979)

3.b.vi STAR TREK: THE MOTION PICTURE (1979)

Product shown in movie	Year shown in movie	Real product/attempt	Year of invention
Space station	2271	Salyut 1	1971
Bioscanner	2271	EXPLORER - full body scan	2018
Shield generator	2271	nil	nil
Battle cruiser	2271	nil	nil
Shuttlecraft	2271	nil	nil
Starship Enterprise	2271	nil	nil
Transporter beam	2271	nil	nil
Transport pod	2271	nil	nil
Thruster suit	2271	Manned maneuvering unit	1984
Blasters	2271	nil	nil
Photon torpedo	2271	nil	nil
Phasers	2271	nil	nil
Hover trolley	2271	nil	nil
Android	2271	Ripliee Q1	2003

5. CONCLUSION

i. From the plotting done using Maslow's theory, it becomes evident that majority of the sci-fi products showcased serve purposes of transportation, defense or satisfying the 'esteem needs' of humans. This comes as a direct result of sci-fi movies being developed as action adventures, and trying to predict how technology will change the lifestyle of human beings in future scenarios. The focus of real world technological advancements have always been in warfare & transportation, and we can clearly see how this influences sci-fi movies. Movies, as a medium have a limited run-time and hence focus is given more to the scenarios and products which is of utmost relevance to the story and can push the story forward. This leaves a gap where the observer has to assume that the basic needs have already been taken care of in that particular scenario. For example, in Star Wars: A New Hope, the character of Darth Vader has half of his body composed of robotic prosthetics. In the entire movie, it is not shown how he consumes food or whether he has some IVF device feeding him nutrition. But since the character is the main antagonist and is seen performing action sequences, one assumes that he is healthy and his basic survival needs have already been taken care of.

ii. The second study which drew parallels with real world products shows that there is a long way to go in completely realizing futuristic products shown in sci-fi movies. Be that as may, the products which have become a reality are well ahead of its predicted timeline and has huge scope for improvements. We can also see, that the products which have become a reality are part of survival, safety and esteem needs, and not weaponry, which gives us an indication that the war torn dystopian scenarios predicted in some movies will remain a fiction and that humanity is moving towards a better, healthier and peaceful future.

The most advanced products are seen in space exploration and adventure movies, which is one field man is still trying to gain mastery over. Developing technology such as hyperdrive and transportation beams seems near to impossible in the present world scenario, which if developed, then it can drastically change the way in which humans travel and open up new possiblities, not just in the field of space exploration, but also in every day life.

6. ANNEXURE

6.1. Sci - fi movie timestamps   https://bit.ly/2Sk6Ob4
6.2. Products from popular sci-fi movies (1950 - 1980)   https://bit.ly/2vyk3vK

6.3. The Day the Earth Stood Still (1951)

Flying saucer landing in a baseball field
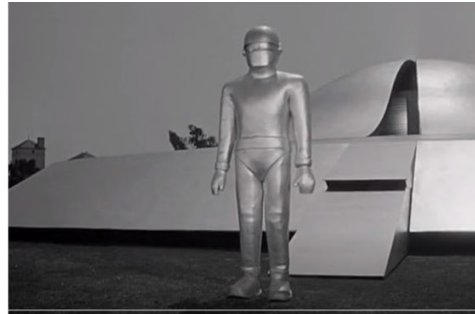
Gort - humanoid robot
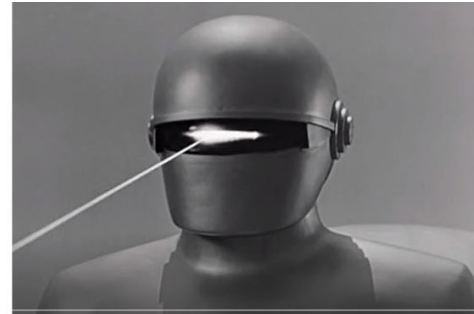
Dematerialising ray

Weapons getting destroyed by Gort's ray
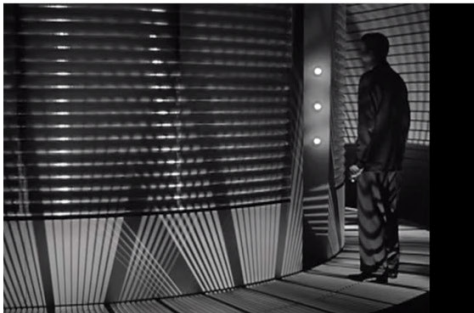
Automatic sliding doors in the shuttle
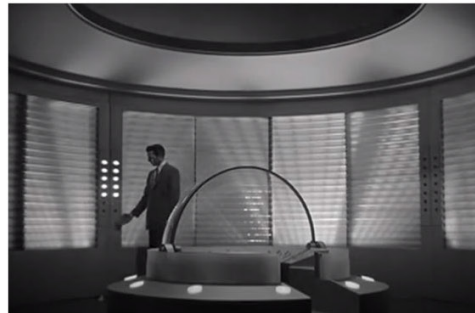
Gesture controlled lights

KL-93 plastic

Gort trapped in KL-93 plastic
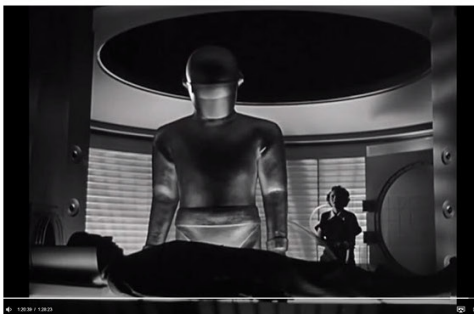
Gort placing Klaatu in healing bay

Klaatu being revived by the healing bay

6.4. The War of the Worlds (1953)

Life on Mars

Heat ray from the alien ship
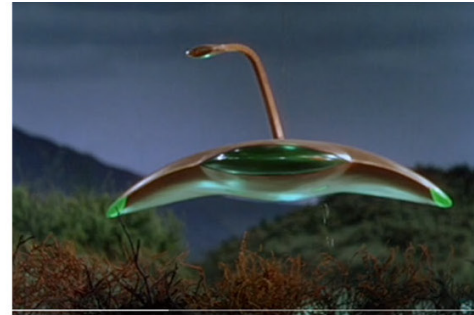
Magnetic levitation tech used by alien ship

Force fields generated by ship
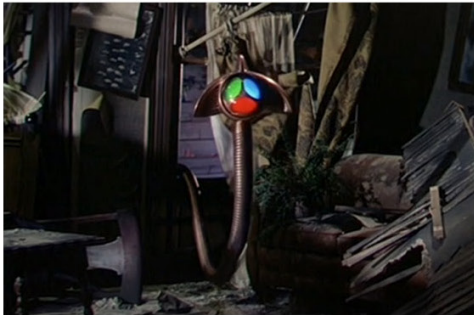
Visual probe

6.5. 20000 Leagues Under the Sea (1954)

The Nautilus

Electric repellent shocking the tribals

Electric repellent shocking the tribals
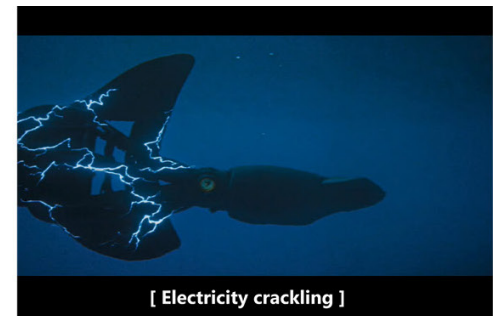
Electric repellent shocking the sea monster

6.6. Forbidden Planet (1956)

C-57D Spaceship

Deceleration chambers
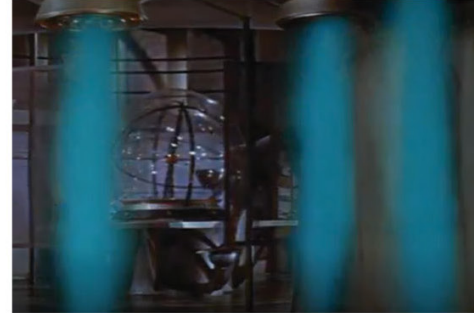
Deceleration chambers being activated

Vertical landing tech used in C-57D

Robby the robot

Food analyser and replicator built into Robby

Dematerialising ray

Blaster being fired by Robby

Automatic sliding doors

Hologram generated by Dr. Mobius

Blaster cannon

EMP weapon disabling hand-held blasters

6.7. Invasion of the Body Snatchers (1956)

Birthing pod

Pod opening up

Clone born from the pod

6.8. Plan 9 from Outer Space (1959)

Flying saucer

Electrode gun

6.9. The Time Machine (1960)
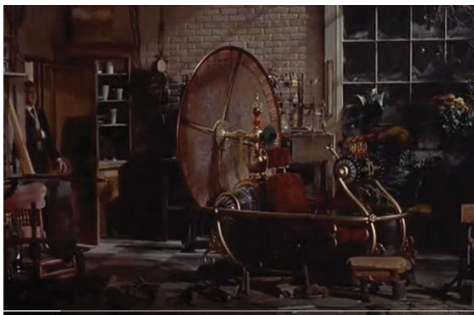
The time machine

Atomic satellite

Audio ring being spun

Audio ring plays a pre-recorded message

6.10. Farenheit 451 (1966)

Jetpacks

6.11. Planet of the Apes (1968)

Interior of the space ship

Hibernation pod

6.12. 2001: A Space Odyssey (1968)
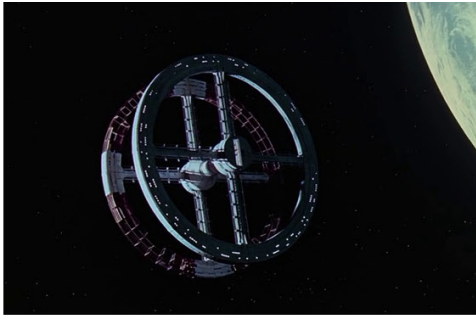
Space station

Grip shoes
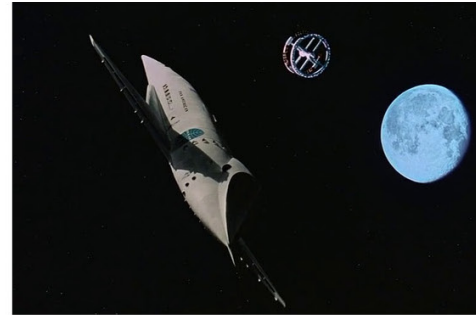
Space shuttle

Voice print id
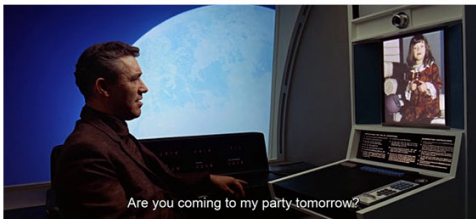
Video calling

Colony on Moon

Touchscreen tablets

Hibernation pods
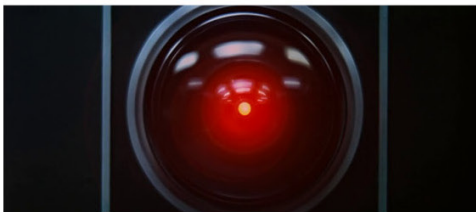
HAL 9000 - AI
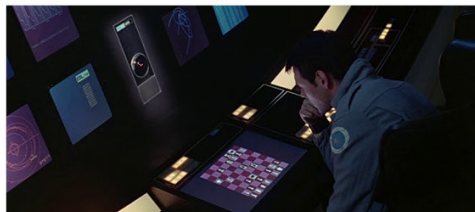
Chess game against AI
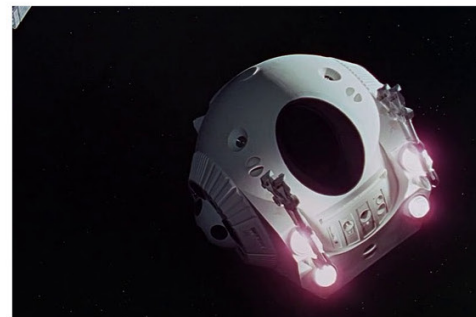
Space pod

6.13. Barbarella (1968)

Space ship

Alphy - AI

Video call showing the atom transmitter

Brain wave detector
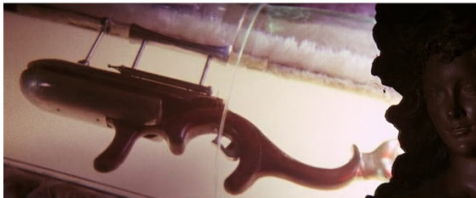
Blaster gun transmitted via atom transmitter

Tongue box

Wind-craft

Transport tubes

The excessive machine

Console for activating positronic ray

Positronic ray weapon being fired

6.14. Beneath the Planet of the Apes (1970)

Doomsday bomb

6.15. THX 1138 (1971)
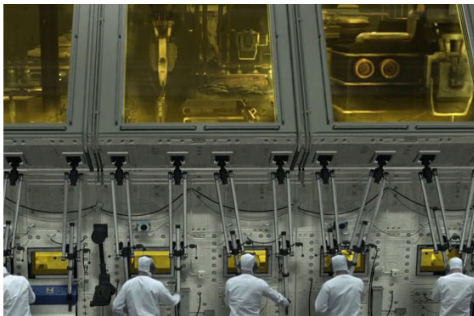
Android manufacturing factory

Android being manufactured

Confession chamber
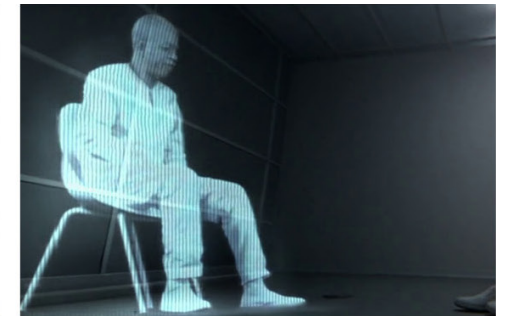
Hologram
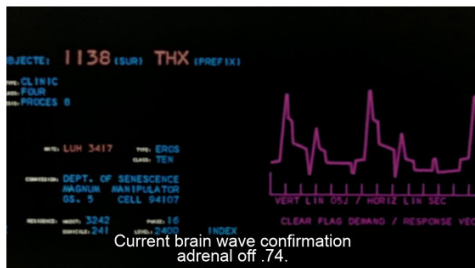
Bio scanners

Mind lock disables the person

Android police
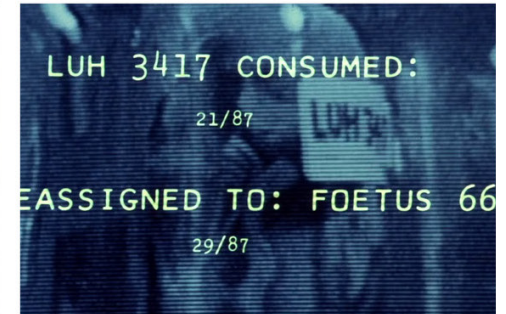
Foetus in the birth chamber

6.16. The Andromeda Strain (1971)

Finger and palm print scanning
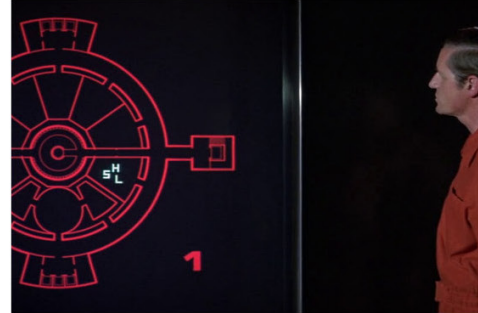
Live location tracking

Thermograph scan
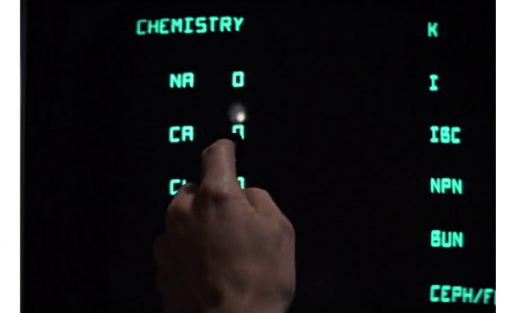
Light pen
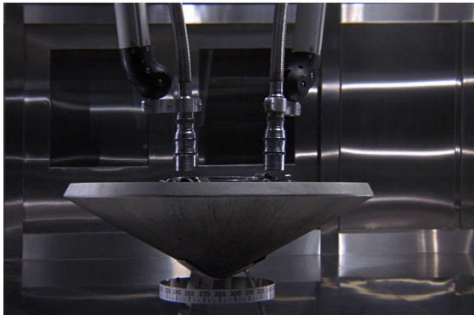
Micro scanners
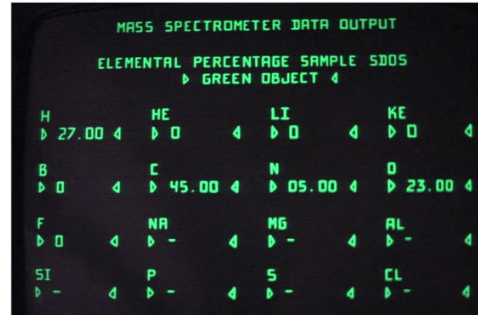
Mass spectrometer

Video calling
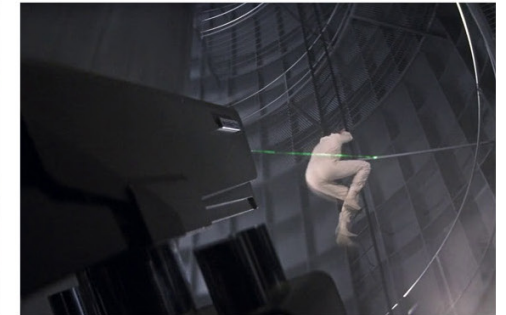
Laser gun

6.17. Escape from the Planet of the Apes (1971)

The crashed space shuttle being towed to shore

Apes being escorted out of the shuttle

6.18. Solaris (1971)
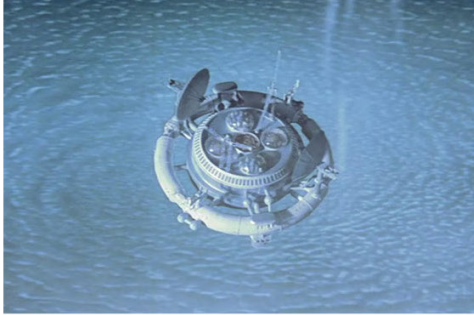
Space station Solaris

Flat screen tv

I'm calling from the city.

Video call

6.19. Conquest of the Planet of the Apes (1972)

The authenticator

6.20. Soylent Green (1973)

Gesture control doors

Riot control vehicle

Intializing the Dying chamber

Dying chamber soothes the person into death

6.21. Sleeper (1973)

Hibernation pod
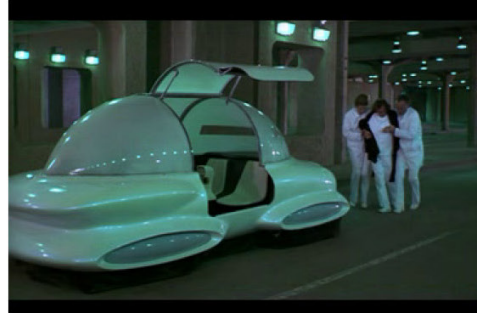
Autonomous car

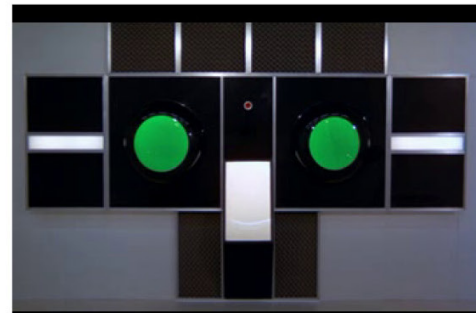Robot servants

Jetpack

Video calling

Hydrovac suit

Robot salesman

Cloth making machine

Robot dog

Fingerprint scanning
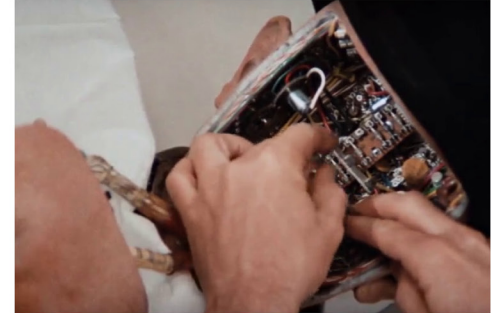

AI

6.22. Westworld (1973)

Androids being checked for faulty performance
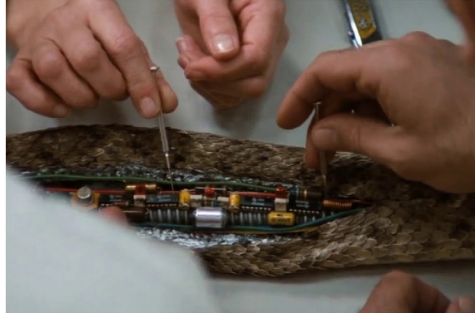
Robot snake being inspected

Android head opened up for inspection

Circuitry within android head being inspected

6.23. Logan's Run (1976)

Dome city which is isolated from outside world

Inside the dome city

Palm crystal embedded into babies at birth

Birthing and care chamber

Proximity sensor being used to track a runner

Blaster being fired

Blaster hitting its target

Jetpack - like transportation devices

Dematerialising spray being used on death body

Palm scanner used for identification

Face selector being used before plastic surgery

Laser gun cuts through the skin

Instant healing spray used to heal the cut

Robot

Robot approaches with freeze gun

Surrogate interrogation device being used

Display shows a virtual surrogate being interrogated

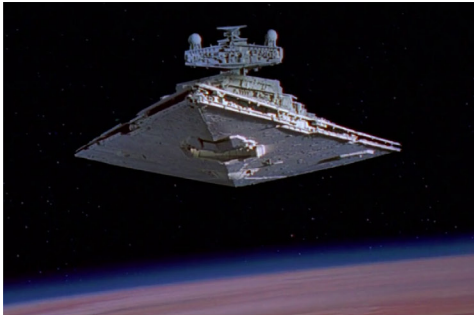## 6.24. Close Encounters with the Third Kind (1977)
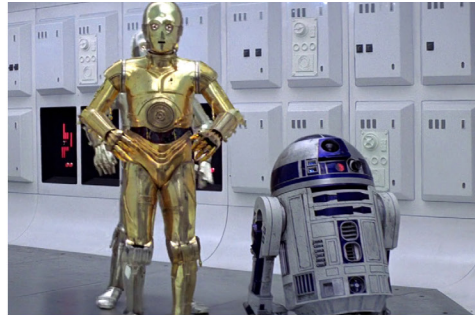

UFOs

Alien mothership

Mothership trying to communicate with humans

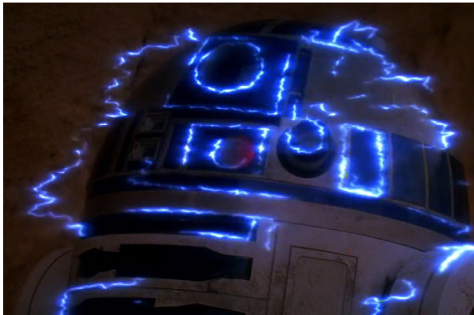## 6.25. Star Wars: A New Hope (1977)

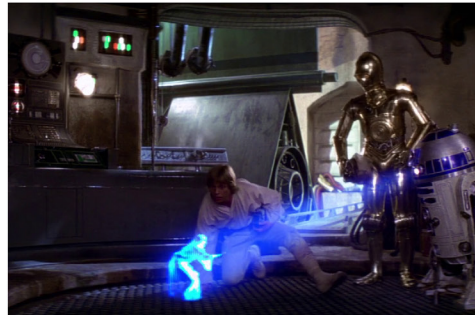
Imperial Star Destroyer

C3PO and R2D2

Blasters being fired

Clones

EMP used to disable R2D2

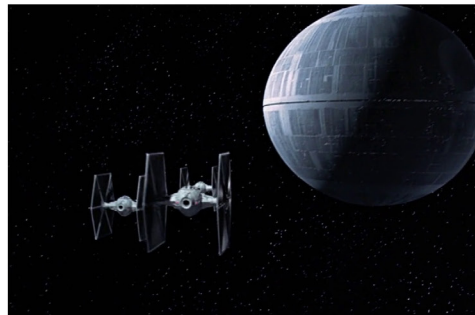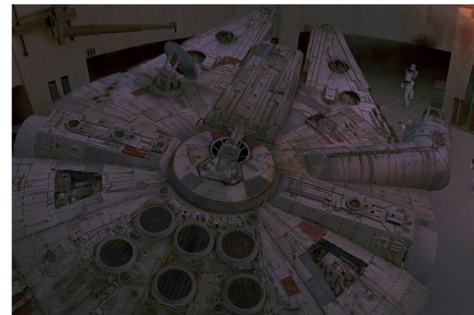Hologram message

Land speeder

Light saber

Death Star

Tie Fighters

Millenium Falcon

Millenium Falcon jumping to light speed

6.26. Invasion of the Body Snatchers (1978)

A clone body

Birthing pods being carried around

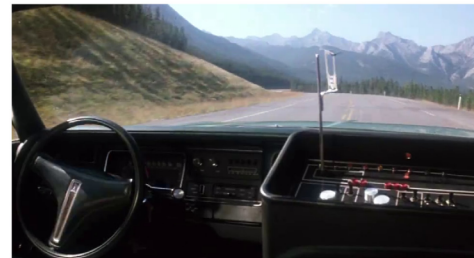Clone being born from a pod

6.27. Superman (1978)

Hologram projections

Space ship

Fully remote controlled car

Lex Luthor controlling the car using a remote
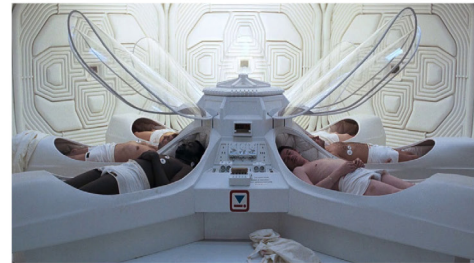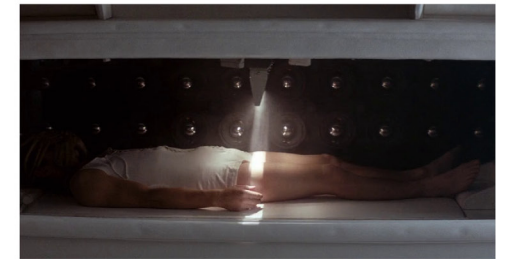
6.28. Alien (1979)

Nostromo - Space towing vehicle

Chamber to communicate with ship's AI

Hibernation pods

Bio scanner

Bio sensing gun

Decapitated android

6.29. Moonraker (1979)

Dart gun

Live X-Ray scanner

Mini camera
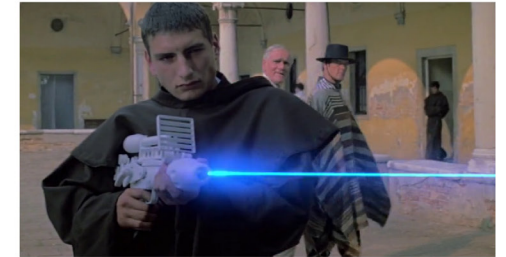
Laser gun
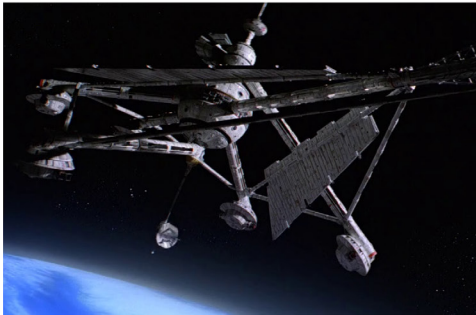
Space city

6.30. Phantasm (1979)

Killer drone

Killer drone drilling into victim's head

6.31. Star Trek: The Motion Picture (1979)

USS Columbia

Space communication station Epsilon IX

Shuttlecraft can be seen in the backdrop

Space station

Space pod

Space ship construction structure

Transporter beam being used

USS Enterprise

Hover trolley

USS Enterprise jumping to lightspeed

Video conferencing

Personnel carrier

Android

Bio-scanner

Thruster suit

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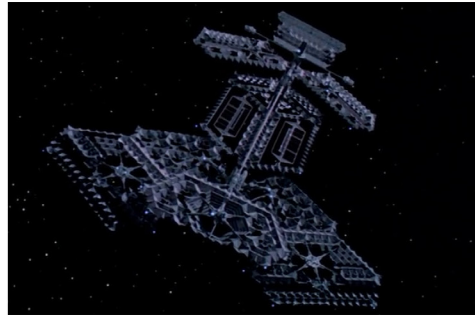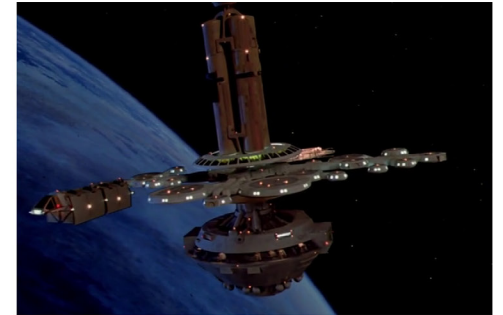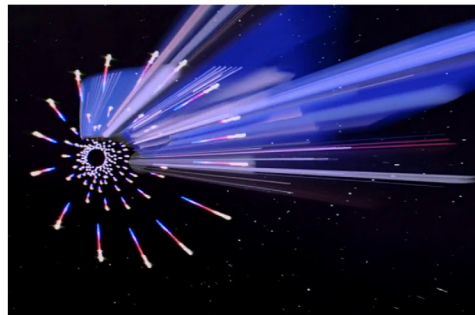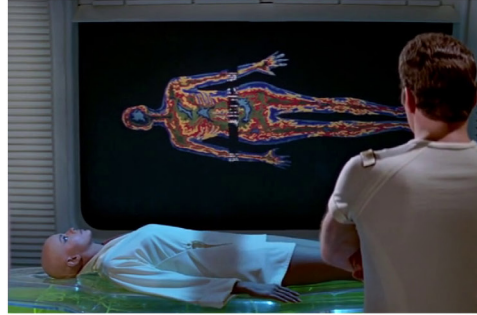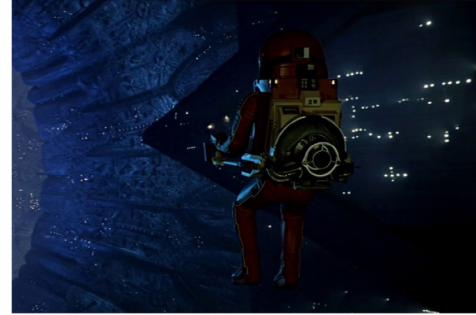
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