



Animatronics and Multi-Disciplinary Technologies

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Abstract-Animatronics is a wide area of technology used for making animated objects as like human or any other creatures. To develop this machine is mainly composed using animations and electronics. The technology behind this is used in the occasion where the creatures have no end. It is the sculpture with the mechanism and electronics created for the life-size moving creatures. This paper explicitly reveals the technologies included in it.

Keywords-Electronics, sculpture, mechanized object, pneumatic, plastic skin, humanoid robots, hydraulic, motion tracks.

I. INTRODUCTION

Animatronics gives a special spirit to the imaginary creatures to make them alive. An virtual creatures was implicitly formed on the basis of science and technologies. This technology was developed by Walt Disney in the year of 1960. And Leonardo Da Vinci continued inventing in the mechanized characters. It is the creation of machines which seems so animate. The implementation of this system can be made by using computer or manual control. Three more kinds of powers can be given to the animated figures such as pneumatic, hydraulic, or by electronic means. The specified controls and the programs are done manually by human.

II. LIFECYCLE

- At first in the year of 1963, animatronics was used to create a Tiki birds and figure of a living person(Abraham Lincoln) as models.
- At the year of 1964, the first picture with motion was created in the film called marry poppins.
- From 31st oct,2008- 1st july,2009: The Autonomatronics in the same picture of Abraham Lincoln.
- In between these years this technology is vastly used in the films by name called the wizard of oz, disneys Hollywood, version hills, Illions

III. ANIMATRONICS

It is the creation of inventive machines with motion. Its an imaginary illusion, that are brought to the real life. The every part included in the sculpture are designed with the scanners and lasers. The scale model that are designed and exposed with the Computer Aided Design(CAD) software packages. The special kinds of plastic skin are used to reduce the weight of the model. It allows for more flexible and believable movements.

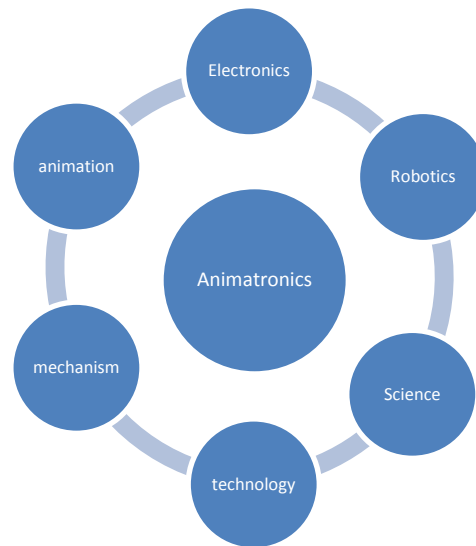


Fig 1. Animated object

Applications involved in it are

- It is used in movies to create enthusiastic creatures, hostiles etc.
- It is used in theme parks for real-time entertainment.
- It is used in medical field to make recovery of the risky patients.

An animated object is provide in unanimated look with internal mechanisms various fields are integrated. They are electrical means, mechanism, robotics, anatomy and animation. . It includes mythical creatures, animals, plants, birds and even a mischievous character. New creatures are built using mechanism with animated look, set voice and well programmed with motion tracks. This puppet may look similar to human beings or like a different species, more innovations will be included in it.



Animatronics include mechanism for creating machines. The robots consist of the same technology. The robot looks like a machines but animatronics creatures not yet. The humanoid robots are similar to the animatronics creatures. But, it differs in functionality. The animatronics object have limited in functionality. Being having the same technology animatronics is different from robotics.

How it works

A animatronics device is motorized object that are pre-programmed and controlled by remote or manually. That works in the limited range of movements that are incredibly versatile. That is more helpful in the time of emergencies. It will do the risky jobs while the human beings think of do it.

IV. GOAL OF ANIMATRONICS

The animatronics technology is aimed to achieve the efficient degrees of freedom to mimic human with their facial expressions and actions of every movement. This technology includes CAD software package in designing the speculation. It uses face-tracking software to develop the movements and behaviours of the human. This software is used to develop the eye motion, eyebrow motion, mouth motion, neck motion, hand motion, leg motion and corresponding degrees of freedom to the robots. Animated objects may be mimic as human or animals that includes voices elimination also. Such creations never be different from the intrinsic objects.

V. ANIMATIC MOVIES

To bring innovation in movies, there is a need of the technology called animatronics. Nowadays, animatronics concepts are vastly used in movie makings to bring new innovations. By using this technology, the film differs from other films. To perform the risky actions in front of the camera this technology is vastly helpful. For example: in situation where the actor does not exist, the physical objects are used.



Fig 2. physical nature of woman into an object

Actually, the particular movements can be obtained only by the mechanized objects there is no constraints for it, if any fault occurred in the machines it can be rectified yet the living persons cannot.

SAMPLES OF ANIMATRONICS IN FILMS

The samples of animatronics technology movies are:

1. Jurassic park.
2. Terminator.
3. Kingkong.
4. Avathar.

VI. FORMATIONS OF CREATURES

The animatronics creatures can be created with the following processes: **ARCHITECTURING**

Make drawing of the creature outline with dynamic figures. It is like creature-tastic drawing idea by the designers.

SCULPTING

Making models as per the planning with the exact measures. Demonstrate the figure by implementing some of the concepts.

MANUFACTURING

Using the materials and soft plastics the covering parts are fabricated. The quality of fabrics are high because it is often used to face the risky factors.

ACTIONS

Giving training for the actions. Making it to move, to slide, to have control over the arms and train to speak. The figure below will describe the manufacturing of animatronic objects.



Fig 3.Mechanism of the puppet

The animatronics creature can be formed with the electronic programmed devices and covered with the comfortable soft plastic skin. Each and every part of the body are customized perfectly to the dimension of the human proportion. After that the colour are given to the skin and the hair are given more realistically. These components will make the object to be visible as more real and natural.

VII. CONCLUSION

This technology is created for the Disney studio in 1960. But, now more than 10,000 creatures are created in animatronics. The limitations which are given in data achieved for the development of this mechanism prevents the robots from reaching its full potentials. This feature is more widely used in nowadays. Consisting of several fields inside one technology that explores a creation of amazing objects.

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