



An Introduction to Robotic Entertainment: Design and Development Concepts

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Frank Appiah , *Member, IEEE*

Abstract—This is about a conference paper on robotic entertainment of some SBLP manipulators in arm structures. Arm structures depict a mechanical structure of arm and the needed automation for it to turn into a proper servo-controlled robot. Entertain is to consider an idea or feeling and allow it to develop in the mind. Some details of current advancement in entertainment robots are looked pictorially. Final is the look at the future of robotic advancement with terminologies likes autonomy, machine intelligence, cost of material and design decisions.

Index Terms—arm structures, manipulator, linkage, chain, robotic entertainment, feeling, mind, development.

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1 INTRODUCTION

Robotics is the design, construction, operation and use of robot(machine).

Robotic[2] Entertainment is the design and development of robot idea or robot feeling in the mind with art forms captured by photography or virtual reality means. It is about autonomous programmed behaviour for film or movie purposes. The main focus of this paper is as shown below:

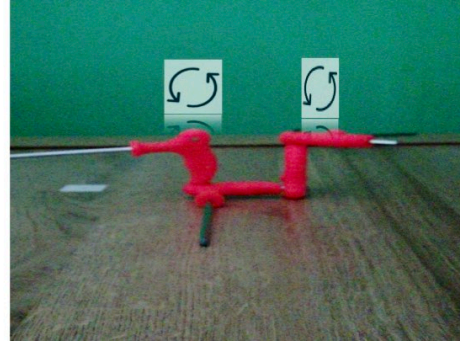
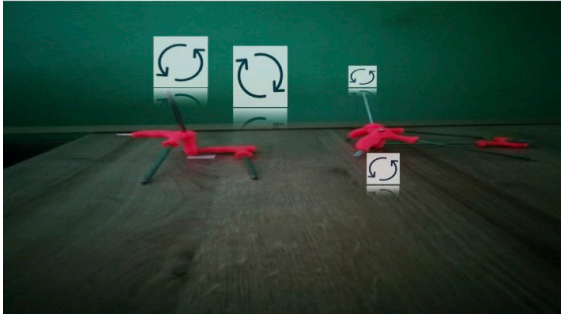
- Focus subjects to entertainment of autonomous systems.
 - Focus on Art forms the activity of creating or studying these objects in digital skill and not all scientific.
 - Focus on robotic art.
 - Focus on art entertainment with robot presence.



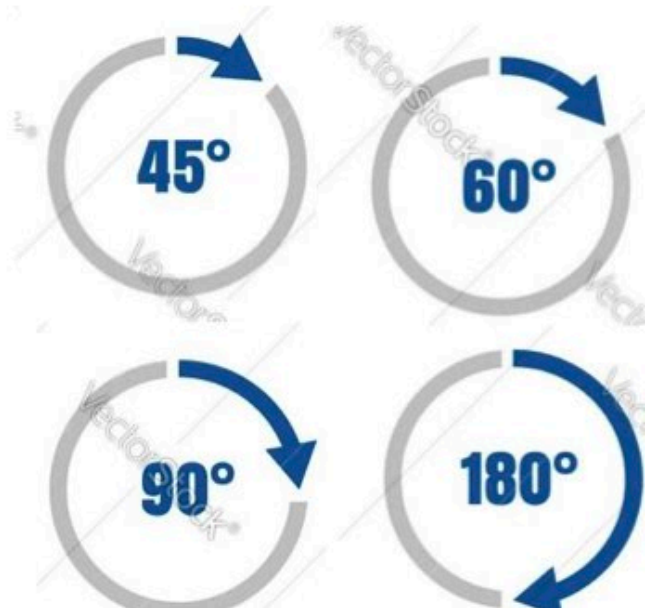
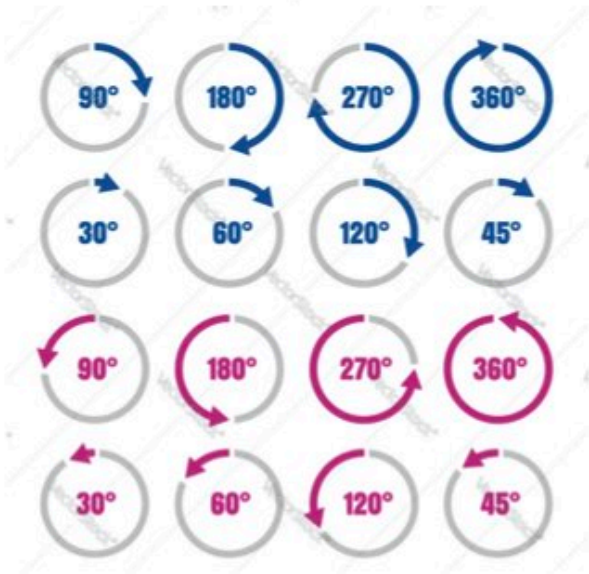
It is about attraction of robotics in its promise of arm manipulation. It is about robotic arm system consisting of robot base, links, joints, motors or actuators, joint sensors and end-effectors in the task of entertainment purpose.

Robot Arts

We now look at some robot configurations for illustration purposes

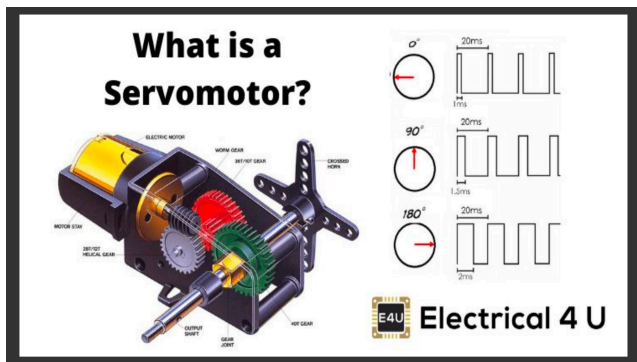
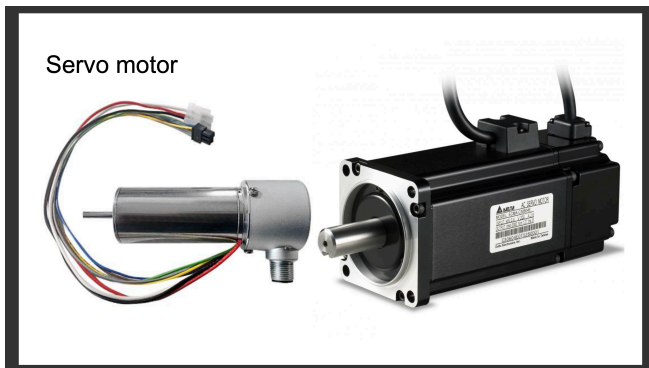


Rotation Degrees



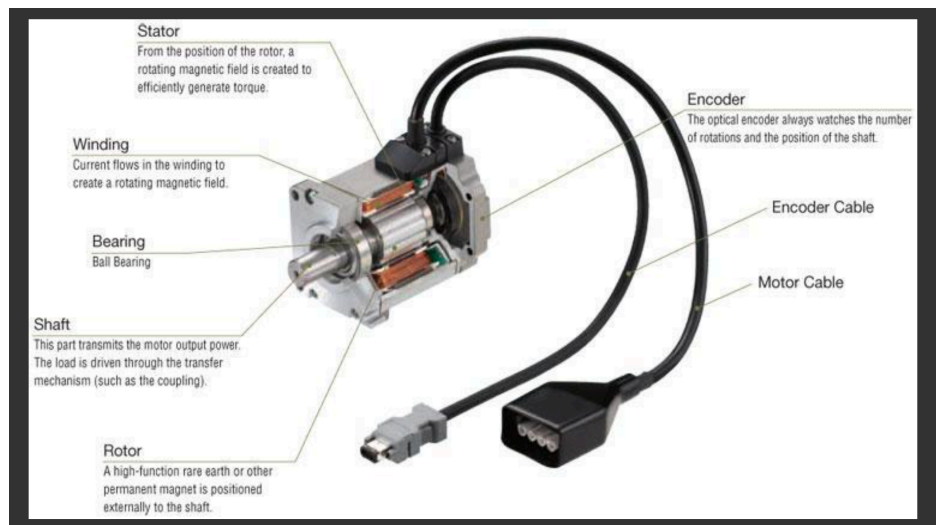
Autonomous behaviour is much source of entertainment. With servo-motor and embedded computer, motor can be programmed and controlled.

That was on robot control by a computer. Robot Manipulator is a sequence of links articulated at joints. Added autonomous behaviour can give a feel of robotic task. It is Entertainment and can be no task at all. A servomotor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a sensor for position feedback. [Wikipedia](#)



Pictorial Forms of Servo-Motor

The Arduino Uno[1] is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output pins that may be interfaced to various expansion boards and other circuits. [Wikipedia](#)

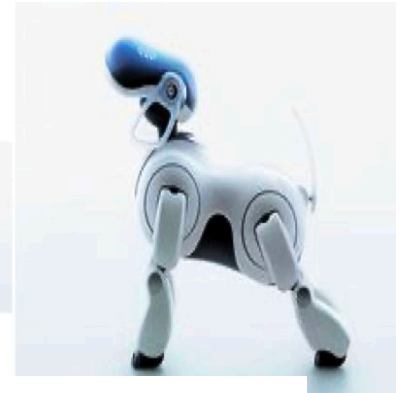
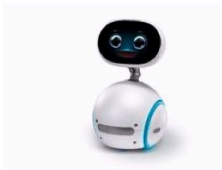


Arduino Microcontroller



The TinkerKit Braccio is a fully operational robotic arm, controlled via Arduino. It can be assembled in several ways for multiple tasks such as moving objects. You can also attach a camera or solar panel. There are so many ways in which the Braccio can extend the reach of your devices. An entertainment robot is, as the name indicates, a robot that is not made for utilitarian use, as in production or domestic services, but for the sole subjective pleasure of the human. ... Robotics technologies are applied in many areas of culture and entertainment.

PICTURES OF INTELLIGENT ROBOTS



TOP 10 ROBOTS



The top ten robots in the market includes the following : aibo, animo, pepper and more.



Up-to this point, we know that:

- A topic in general interest to robotics, the relationship between joints and degrees of freedom.
- Its infancy as a technological area of advancement.
- An Introduction to robotics.
- Robots are programmable tools.

Robot Manufacturers:

ABB
ADEPT
DENSO
EPSON
FANUC

MOTOMAN
NACHI
REIS
STAUBLI

Robot Specifications [2]:

Dimensions
Weight
Payload
Workspace
Range of joint motion

Control accuracy
Repeatability
Durability
Reliability

- **Robot weight** of overall robot can be an important factor in applications that require that the robot be moved frequently.
- The **size** of robot is determined by dimensions of its link and its mechanical structure.
- The **Workspace** consists of volume of space that the robot can reach with its end-effector.
- On command does the robot move to its particular position with its tool. That is a question of **accuracy**.
- Repeatability concerns the robot ability to repeat recorded sense readings from its storage.
- Mean time between failures, which is the average time that the robot spends on uninterrupted work without requiring repair or maintenance. This is about **reliability**.

2 CONCLUSION

The future of robotic delves on the following:

- (1)Autonomy in the design.
- (2)Machinery of design with sufficient intelligence to make rational decisions within a dynamic environment.
- (3)Use of cost effective materials in body design and chains.
- (4)Destined to evolve quickly.

REFERENCES

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Dr. Frank Appiah. He is a holder of Bsc(Hon) from Kwame Nkrumah University of Science and Technology in 2018, Msc in Advanced Software Engineering from King's college London in 2010 and PhD in computer science and engineering from both KCL (2012/2014) and KNUST (2014) respectively. Frank Appiah has professional certificates in Management and engineering since 2011. He developed StreamEPS - Stream Event Processing System in 2011 which is hosted at Github. This work is presented at Researcher-App and this is the paper on the conference presentation. Much thanks goes to Martina Currenti of Researcher-App company.

