

УДК 004.8

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HUMANOID ROBOTS

When people think of Artificial Intelligence, the major image that pops up in their heads is that of a robot gliding around and giving mechanical replies. There are many forms of AI, but humanoid robots are one of the most popular forms. One of the earliest humanoid robots was created in 1495 by Leonardo da Vinci. It was an armor suit, and it could perform a lot of human functions such as sitting, standing and walking. It even moved as if a real human was inside.

Initially, the main aim of AI for humanoids was for research purposes creating better prosthetics for humans. Nowadays, humanoids are developed to carry out different human tasks and occupy different roles, e.g. a personal assistant, receptionist, and front desk officer.

Humanoid may be defined as something that resembles a human being and has certain human characteristics. Some humanoids may also have a face, eyes, a mouth and are categorized as male/female humanoids. Generally, humanoid robots come in three variations: small-, medium-, and large-sized.

Some androids are built with the same basic physical structure and kinetic capabilities as humans but are not designed to really resemble people. Examples of

this type of android include Aldebaran Robotics' Nao and Google-owned Boston Dynamics' Atlas robot.

Other androids resemble humans so closely that they could be mistaken for living people; this type of android is often modeled on live humans. Eve-R, from the Korea Institute of Industrial Technology and Geminoid DK are two examples of this type of android.

To make the robot behave like a human being, sensors play a big role. There are sensors for sensing position, speed, and orientation, to detect the presence of nearby objects, to measure distances, inclination or acceleration.

An advanced humanoid robot categorized as Android has human-like-behavior. It can talk like a human being in a computerized voice, run, jump or even climb stairs in a very similar way as a human being does. These humanoids perform a variety of jobs ranging from complex factory jobs to household solutions. Some of the advanced Humanoid Robots available in the market are the following.

DARwIn-OP, a humanoid that can be used for household purposes, built with the main aim of education and research.

DARwIn Mini is a very lightweight robot. The 27cm tall robot is completely open source and its parts are 3D printable, which makes this an ideal and cost-effective development platform.

NAO Evolution is a 58cm-tall robot packed with tactile, sonar, and pressure sensors, cameras and other standard equipment, being able to perform highly complex motions and tasks.

Pepper is a cute faced humanoid robot designed by Aldebaran in collaboration with Japanese communications. The robot is equipped with a highly cloud-backed voice recognition engine that has the capacity to identify not only speech but also expressions, tonality and subtle variations in the human voice.

Romeo is a cute-faced character from plastic and metal. The idea of developing a robot that helps people with requiring physical aid or providing health solutions is not new, but Romeo is one of a kind in robotics built specially for these tasks. Besides the care shown to people, it can be a real family member. It can have a conversation or even work in the kitchen, or it can also empty the garbage. The interaction between people and Romeo is done in a natural way using words or gestures.

UBTECH Alpha 1S is an intelligent humanoid robot. It can demonstrate yoga, exercise, kung fu, dancing and other moves. Alpha 1S is highly flexible and can move just like a human. It can be controlled easily through Android OS or IOS app via Bluetooth.

A few years ago there was only experimental research in humanoid robotics mainly in the field of the automobile industry, whereas now with a faster development rate, humanoid robots are used in many fields varying from medical

to transport, industrial to recreation. Work can now be done within limited time thus saving human effort.

When we consider the aggressive progress in the field of Technology, we can predict the future of humanoid robots as a complete replacement for most of human being's day-to-day activities. The humanoid robots would be able to drive us home, help in housekeeping, prepare food for us, help children to put on clothes etc. These robots would be too expensive to be affordable for many people. Apart from easing our work, there is something else to think about. The humanoid robots can pull away many jobs of common people.

To sum up, in the recent past, we saw the advent of many revolutionary technologies such as driverless cars, electric cars, flying cars, and 5G technology. Likewise, we can think of humanoid robots as a game changer.