ARTIFICIAL APTITUDE AND ROBOTICS

{APTITUDE=INTELLIGENCE}

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Abstract— **In all over world people are learning how the present day robots and the future of Artificial intelligence and Robotics would impact the society and the social life. Robots are machines that are most often programmed by a computer. They are capable of performing a series of complex actions robotically. Robots can be utilized by using either an external device (such as a remote control) or through a device that is implanted within the robot itself. Artificial Intelligence is a science and expertise based on disciplines. In this paper we learn about artificial intelligence (AI) and robotics.**

Keywords: - Artificial Intelligence, Robotics, Social Life, Logical Reasoning.

I INTRODUCTION

Artificial aptitude and Robotics created an interest in the areas of medicine, manufacturing, military and household applications. The idea of combining these machines together with the computational power of computers to act or think in a way humans do, creating computers or machines as intelligent as human beings, has existed for some time. Artificial intelligence demonstrated by machine, in contrast to the natural intelligence display by human and other animals. The scope of artificial intelligence is disputed as machine become increasingly capable.

II ARTIFICIAL INTELLIGENCE/ APITUTED (AI)

John McCarthy is the father of Artificial Intelligence. Artificial Intelligence is a knowledge and machinery based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. It is defined as "The science and engineering of making intelligent machines, especially intelligent computer programs". They are capable of performing a series of complex actions automatically. Alan M. Turing is best known for "The Imitation Game" in which the question "Can machines think" is considered and evaluated. This question has led to the rise of many researchers such as Marvin Minsks, John McCarthy, James McClelland, David Rumelhart, and Lofti Zadeh, resulting in a substantial amount of work in the area of Artificial Intelligence. . In the field of labor economics, substitution of labor by AI and robots is hotly discussed. Although this discussion is a natural extension of numerous studies on the relationship between ICT and labor, the estimation by Frey and Osborne (2013) on the number of jobs at risk to be replaced by future computerization. Alan M. Turing published "Computing Machinery and Intelligence" in 1950. .Robots are machines that are most often programmed by a computer.. Robots can be utilized by using either an external device or through a device that is implanted within the robot itself. .The term "robot" was form of written messages so that the interrogator cannot determine whether it is man or woman through the voice. The term "robot" wasfirst used by the Czech writer, Karel Capek. George Devoninvented the first digital and programmable robotic 1945. Artificial intelligence (AI) has been a fascinating concept of science fiction for decades, but many researchers think we're finally getting close to making AI a reality.Driverless cars have now become a reality through new and advanced technology, but with all good things come the bad. The invention of driverless cars is meant to ease people's commute to and fro. But, what happens when something goes wrong? One such example could be a self-driven car given the task of taking you to your friend's party on time. In this scenario, the car will drive at the fastest speed possible, taking the shortest route, violating all the speed limits, and trespassing all of the properties in the neighbourhood possible, while also killing and injuring many people along the way. Who will be responsible for the damage done? Who will be responsible for the medical bills of the injured? Will the car's owner be responsible or will it be the car's manufacturing company?

III ROBOTICS

Robotics is concerned with the connection of perception to action. .Isaac Asimov, part of the 1945 alumni of Columbia University, coined the term "Robotics. Robots are made out of hardware, which acts as an agent to perform certain defined tasks by manipulation. In medicine, Robots are being used in neurosurgery and in treating cancer patients. Use of Robots for household services, such as cleaning and surveillance, have increased and will continue to do so as time goes on. Major Service providers are now planning to provide home-based robotic services to help the sick and aged who are home alone. In Japan, Robots are being used to guide the blind. In addition, humanoid Robots are being tested and evaluated for deep space travel and exploration by NASA. AI provides the intelligence by addressing what knowledge is required in

the aspect of thinking, representation of the knowledge, and how it is to be used, thus making Robots intelligent". However; Robots are operated in both supervised and unsupervised manners. Robots can be in form of manipulators, mobile robots (such as the ones used to automate transport in production processes), and humanoid robots (which have a resemblance close to that of a human being). Would you allow a robotic car drive you? Would you trust a robot to operate on you? Would you trust a robot to prescribe medications for your aging mother? Would you like robots to fight wars for your country? More importantly, whose fault is it when something goes wrong? Would the blame reside on the owner of the robot or the builder of the robot? As robots continue to penetrate into our daily lives, these questions need answers. Will robots crush the human race? Will we become the biological slaves of robots? Or more realistically, will robots take our jobs? The idea that robots will replace humans in the workplace is a growing threat for many .Although many would like to blame engineers for creating robots and thus leading to those robots taking other people's jobs, engineers are also creating their own robotic replacements through this process. Robots can very easily replace engineers in the fields of software development and coding. Skill moves at immediate speed, and we now have more power in our pockets than we had in our homes in the 1990s.

Figure 1 Example of a Artificial Technology

1. **Sensor-** Sensors are the perceptual interface between the Robot and its environment. There are two type of

the sensor which are –Active Sensor and Passive Sensor. Active sensors, such as sonar, laser, and radar, are generally used for distance measurements, such as length or depth, to determine the position of the Robot relative to the object. In order to do so, they emit energy, and the reflected energy received is used to determine the distance. Passive sensors, like cameras, are used to gather images of the environment, so they can be analyzed using computer vision and image recognition techniques. In the planning for a robotic assembly, AI defines knowledge required for reasoning, knowledge representation, and its use, as well as gathering information to update the generated plans, knowledge base, and world model.

2. **Effectors -** Effectors are the ways and means by which Robots manipulate their environment. Effectors consist of wheels, grippers, and revolute joints.

3. **Computer -** In this case, the Artificial Intelligence programs consisting of the number of its components resides on the computer.

IV ARTIFICIAL INTELLIGENCE COMPONENTS

Learning **-**Learning is the process of acquiring explicit knowledge or new skills by studying, practicing, being taught, or experiencing something. Learning can be in the form of listening, hearing, remembering such as a sequence of events, playing, watching, writing, identifying, and classifying.

Machine Learning - The machine can be tutored in a supervised manner or it can learn on its own in unsupervised manner. Machine learning is the ability of the computer(s) to learn without explicitly being programmed.

*Logical Reasoning-*Logical reasoning is a set of processes that enables us to provide a basis for judgment and making decisions and predictions. The two types of reasoning that are used include inductive reasoning and deductive reasoning. Inductive reasoning is based on specific observations which are suitably combined in order to reach a broad generalization. Deductive reasoning starts with a hypothesis or broad generalization and examines the possibilities to reach a logical conclusion.

Problem Solving- One of the roles of AI is problem-solving – in which games such as chess, tic-tac-toe, and poker are played using the heuristic knowledge-based rules stored in order to determine the best possible move given the largest number of moves possible**.**

Machine Learning - The machine can be tutored in a supervised manner or it can learn on its own in unsupervised manner. Machine learning is the ability of the computer(s) to learn without explicitly being programmed.

Vision-   These systems analyze and interpret visual input on the computer. In the case of a medical diagnosis, doctors can use clinical expert systems to diagnose the patient using the digital image scans.

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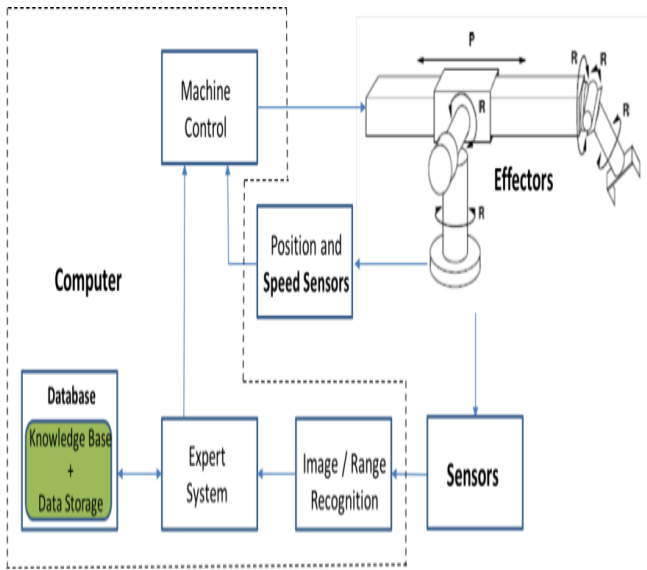
AND ENGINEERING TRENDS

Figure 2 COMPONENT of AI

V ARTIFICIAL APTITUDE IN MEDICINE

In medicine, the issue is that few problems have algorithmic solutions that are both practical and valid. Thus, this is why physicians are expected to reason the illness based on the judgmental rules and empirical associations .MYCIN, an expert system developed for diagnosing bacterial infections, consists of two main parts: a knowledge base (built with the help of interaction with the users to help line of reasoning) and an inference engine (for making decisions). The knowledge base contains facts and associations about a subject area, such as medicine. The inference engine contains rules, which can be invoked in two ways: forward chaining or backward chaining.

Figure 3 Implementation of AI

ACKNOWLEDGMENT

The authors are helpful to all friends and the Professors to help this paper and would like to thank the anonymous reviewers for their comment which were very helpful in improving the quality, knowledge and the presentation of paper.

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