Automatic Mobile Robot Machine

Shivani Shukla[1] Rakesh Patel[2] Sumeet Patel[3]

[1,3]Student [2]Lecturer

[1,2,3]Department of Information & Technology

[1,2,3]Kirodimal Institute of Technology Raigarh, Chhatisgarh, India

Abstract— The word *robot* can refer to both physical robots and virtual software agents, but the latter are usually referred to as bots. There is no consensus on which machines qualify as robots but there is general agreement among experts, and the public, that robots tend to do some or all of the following: move around, operate a mechanical limb, sense and manipulate their environment, and exhibit intelligent behavior - especially behavior which mimics humans or other animals. In practical terms, "robot" usually refers to a machine which can be electronically programmed to carry out a variety of physical tasks or actions. There is no one definition of *robot* that satisfies everyone and many people have their own. For example Joseph Engelberger, a pioneer in industrial robotics, once remarked: "I can't define a robot, but I know one when I see one." The two ways that robots differ from actual beings are, simply stated, in the domain of cognition, and in the domain of biological form. The general consensus is that a "robot" is a machine and not a being simply because it is not intelligent (it requires programming to function), regardless of how human-like it may appear. In contrast, an imaginary "machine" or "artificial life form" (as in science fiction) that could think near or above human intelligence, and had a sensory body, would no longer be a "robot" but would be some kind of "artificial being" or "cognitive robot", (see also cyborg).According to the *Encyclopaedia Britannica*, a robot is "any automatically operated machine that replaces human effort, though it may not resemble human beings in appearance or perform functions in a humanlike manner." Merriam-Webster describes a robot as a "machine that looks like a human being and performs various complex acts (as walking or talking) of a human being", or a "device that automatically performs complicated often repetitive tasks", or a "mechanism guided by automatic controls".

Keywords: Robot, Mobot, UGVs, UAVs, AUVs

I. INTRODUCTION

The idea of automata originates in the mythologies of many cultures around the world. Engineers and inventors from ancient civilizations, including Ancient China, Ancient Greece, and Ptolemaic Egypt,[11] attempted to build self-operating machines, some resembling animals and humans. Early descriptions of automata include the artificial doves of Archytas, the artificial birds of Mozi and Lu Ban,[13] a "speaking" automaton by Hero of Alexandria, a washstand automaton by Philo of Byzantium, and a human automaton described in the *Lie Zi*.

II. MOBILE ROBOT

From Wikipedia, the free encyclopedia "Mobot" redirects here. For the victory pose of Olympic gold medallist Mo Farah, see "Mobot" signature pose.

A **mobile robot** is an automatic machine that is capable of locomotion.
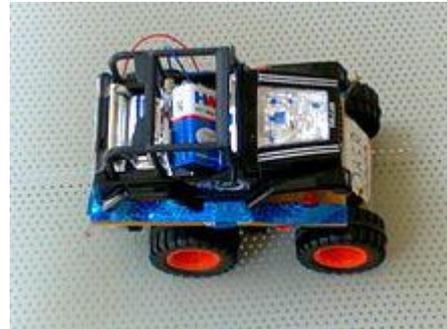
A spying robot is an example of a mobile robot capable of movement in a given environment.

Mobile robots have the capability to move around in their environment and are not fixed to one physical location. By contrast, industrial robots are usually more-or-less stationary, consisting of a jointed arm (multi-linked manipulator) and gripper assembly (or end effector), attached to a fixed surface. Mobile robots are a major focus of current research and almost every major university has one or more labs that focus on mobile robot research.[2] Mobile robots are also found in industrial, military and security settings. Domestic robots are consumer products, including entertainment robots and those that perform certain household tasks such as vacuuming or gardening.

III. CLASSIFICATION

A. *Mobile robots may be classified by:*

1) *The environment in which they travel:*
   - Land or home robots are usually referred to as Unmanned Ground Vehicles (UGVs). They are most commonly wheeled or tracked, but also include legged robots with two or more legs (humanoid, or resembling animals or insects).
   - Aerial robots are usually referred to as Unmanned Aerial Vehicles (UAVs)
   - Underwater robots are usually called autonomous underwater vehicles (AUVs)
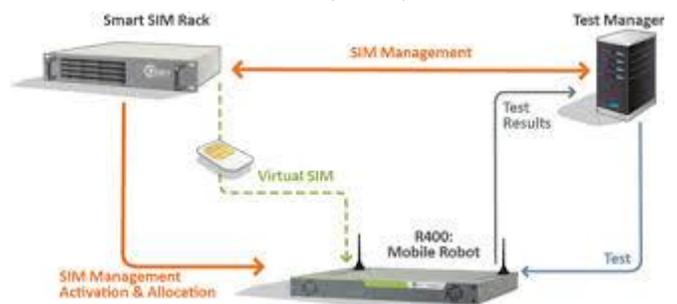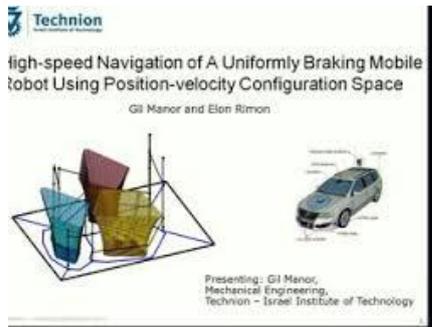
IV. METHOLOGY

A. Autonomously guided robot

Robot developers use ready-made autonomous bases and software to design robot applications quickly. Shells shaped like people or cartoon characters may cover the base to disguise it.[4] *Courtesy of MobileRobots Inc* An autonomously guided robot knows at least some information about where it is and how to reach various goals and or waypoints along the way. "Localization" or knowledge of its current location, is calculated by one or more means, using sensors such motor encoders, vision, Stereopsis, lasers and global positioning systems. Positioning systems often use triangulation, relative position and/or Monte-Carlo/Markov localization to determine the location and orientation of the platform, from which it can plan a path to its next waypoint or goal. It can gather sensor readings that are time- and location-stamped, so that a hospital, for instance, can know exactly when and where radiation levels exceeded permissible levels. Such robots are often part of the wireless enterprise network, interfaced with other sensing and control systems in the building. For instance, the PatrolBot security robot responds to alarms, operates elevators.
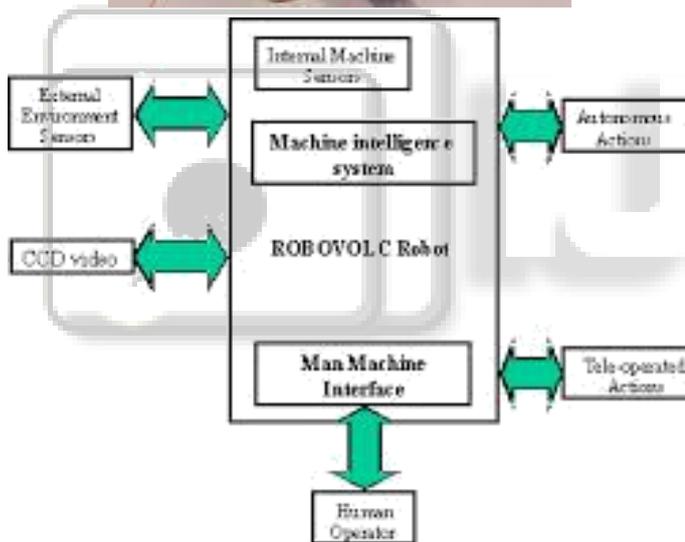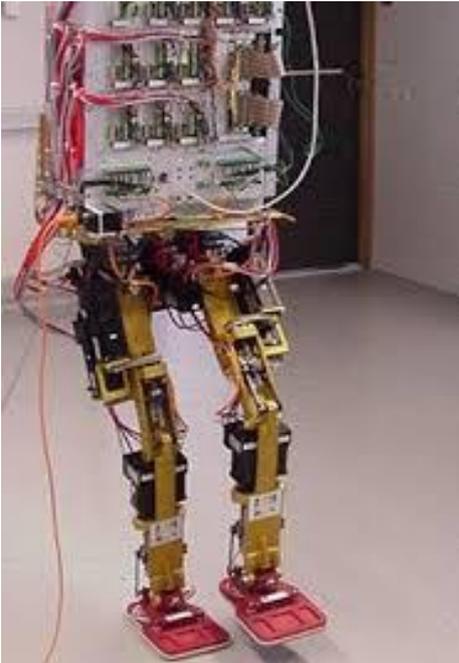
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A. Elerobots

A U.S. Marine Corps technician prepares to use a telerobot to detonate a buried improvised explosive device

near Camp Fallujah, Iraq Teleoperated robots, or telerobots, are devices remotely operated from a distance by a human operator rather than following a predetermined sequence of movements, but which has semi-

autonomous behaviour. They are used when a human cannot be present on site to perform a job because it is dangerous, far away, or inaccessible. The robot may be in another room or another country, or may be on a very different scale to the operator. For instance, a laparoscopic surgery robot allows the surgeon to work inside a human patient on a relatively small scale compared to open surgery, significantly shortening recovery time. They can also be used to avoid exposing workers to the hazardous and tight spaces such as in duct cleaning. When disabling a bomb, the operator sends a small robot to disable it. Several authors have been using a device called the Longpen to sign books remotely. Teleoperated robot aircraft, like the Predator Unmanned Aerial Vehicle, are increasingly being used by the military. These pilotless drones can search terrain and fire on targets. Hundreds of robots such as iRobot's Packbot and the Foster-Miller TALON are being used in Iraq and Afghanistan by the U.S. military to defuse roadside bombs or improvised

explosive devices (IEDs) in an activity known as explosive ordnance disposal (EOD).

VI. CONCLUSION

Some experts and academics have questioned the use of robots for military combat, especially when such robots are given some degree of autonomous functions. There are also concerns about technology which might allow some armed robots to be controlled mainly by other robots. The US Navy has funded a report which indicates that, as military robots become more complex, there should be greater attention to implications of their ability to make autonomous decisions. One researcher states that autonomous robots might be more humane, as they could make decisions more effectively. However, other experts question this. One robot in particular, the EATR, has generated public concerns over its fuel source, as it can continually refuel itself using organic substances. Although the engine for the EATR is designed to run on biomass and vegetation specifically selected by its sensors, which it can find on battlefields or other local environments, the project has stated that chicken fat can also be used. Manuel De Landa has noted that "smart missiles" and autonomous bombs equipped with artificial perception can be considered robots, as they make some of their decisions autonomously. He believes this represents an important and dangerous trend in which humans are handing over important decisions to machines.

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