

Robosapiens

by Arnab Bordoloi - Monday, September 07, 2015

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“ *Your living room is the final frontier for robots.*” - Cynthia Breazeal (Associate Prof. of Media Arts and Sciences, MIT)

MIT Students preparing a robot for DARPA. ([Image Credit](#))

Randomly browsing through the Youtube brought me upon this video that featured the activities of some robots participating in a competition, The DARPA Robotics Competition, California. This video brought me out of my stereotypical thought that robots are to be just some operating limbs working tirelessly in an assembly line in an industry. I was completely awestruck at the amazing activities that a robot could do. They could drive cars, drill holes in walls, pick up objects by choice and walked like humans. I was curious to know more about robots and consequently googled “Robots”. The following screen petrified me, Robotic technology has become so much advanced that I felt as if all our sci-fi films will soon turn into reality.

In the following context I have tried to share some information about some highly advanced but eye-catching robots in a layman’s point of view, that are quite amazing in its own respect. I hope after going through the following, our readers will be able to visualize our society that we are going to live in, in the very near future.

- **Skinny Robot**-A robot that has a soft skin just like a human. Roboticists at the Wyss Institute for Biologically Inspired Engineering and the Harvard John A. Paulson School of Engineering and Applied Sciences have created a robot that has a soft skin. However it has a very hard interior. This robot moves about by hopping. Using gas propulsions it is capable of making short jumps, each jump having a average height of two feet. The chief plus point behind the creation of such a robot is that it is damage free and can squeeze its way through narrow pathways owing to its softness.
- **Cockroach**-The motion of robots becomes really difficult when it gets obstructed by unpredicted obstacles in its programmed path of projection. However Chen Li and his team at the PolyPEDAL Lab, Biomimetic Millisystems Lab, and CiBER, UC Berkeley has found a solution to this problem. Their team has designed a robot modeled in the form of a cockroach and has named it as the ‘VeriRoach’. Other robots usually move about by avoiding the obstacles but these roaches traverse, basically by maneuvering through them. The scientists have developed this idea through close observation of the movement of cockroaches.
- **Healer Robot**- The highly advanced and sensitive technology behind any robot and considering the dangerous areas they have to work in makes them easily prone to damage. But Antoine Cully of Pierre and Marie Curie University has developed a robot that can heal itself. It actually doesn’t heal itself but adapts itself to the damaged conditions. For example if one of its limb is damaged it

will not stop functioning but try all the possible motions with its remaining limbs and then adapt the most efficient method for motion with its present parts. These robots will be highly useful in very harsh conditions where human help is not possible once the robots are let in. Rescue operations, outer space works, deep sea excavations are some citable scenarios where these robots may prove themselves to be useful.

- **Learners**-It usually comes out to be a highly cumbersome job for the programmers to program each and every activity into the robot and it can never be exactly determined what a robot might have to do anytime and anywhere . However, at the University of Maryland's Institute for advanced Computer studies researchers have developed a robot that can learn through observation. These robots usually determine the objective through observation and then try several possible ways to execute the operation and finally adopt the most suitable method for execution of the operation. In other words they learn through mistakes.
- HARMONY - Exoskeleton. ([Credits](#))

Exoskeletons- Medical Science is not left behind to avail itself of the wonderful benefits of robotic technology. Robots are used to diagnose patients with diseases and perform complex surgeries. Exoskeletons are robots that are specifically designed to improvise our own body organs. HARMONY is first of its kind such of a robot. Harmony fits through the entire upper part of the body and are designed to aid neurological disorders and to deliver physical therapy. With such technologies paralysis neurological disorder will no more disrupt the daily chores of a man.

Here I have discussed only a very few examples that a mere google search will show. But the developments in the field of Robots is limitless. There is a lot to achieve and those days are not far away.

Future uses of Robotic Technology-

Today robots are used only in classical areas, mainly in industrial assembly lines. But the robot cists are trying to expand the use of these robots beyond the classical boundaries i.e. if they could be used anywhere and everywhere. Their basic aim being to reduce human effort and to make everything 100% efficient. They are trying to implement the use of robots in those areas which posses a risk to human life or where the human hand feels helpless. There are real practical examples where robots have performed complex surgeries and diagnosed patients with diseases. The recently held DARPA Robotic Competition in California aimed at testing the robots for saving human lives in disastrous situations like the Fukushima nuclear incident. Scientists are trying to develop robots that can be used in defense operations, perform and help doctors in complex surgeries and robots that can aid physically disabled persons. There are robots that can think and learn through observation. I see there is a time coming when we will be helped in every field of our life by a robot and as Cynthia Breazeal has said that our living room will be the final destination for robots.

Conclusion-

Our world is being gradually revealed to the use of robots. It will surely take some time for the transition of our classical society to a society where humans will live in harmony with robots. But such a society will provide us greater comfort, better productivity and a strengthened security. It will give rise to a new

timeline for our human race. Yet there are some questions, questions whether such a harmony can ever be achieved and if achieved at what cost? The answers to these questions lie only in the folds of time, as it gradually unfolds. But till then these advancements in robotic technology can never be stopped and we can only hope that science continue to amuse us with its awesome inventions and discoveries.

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