Viewpoint
Service robots – how should we define them?

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The author

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There is no doubt in my mind that, as Joseph Engelberger predicts, service robots will one day become the largest class of robot applications, outnumbering the industrial uses by several times.

Unlike industrial robots, which are typically found in manufacturing environments, service robots (or "serve us" robots as I like to refer to them) will cater to the *masses*, millions of end-users in a variety of settings from the hospital to the home, from restaurants to offices. Though the service robots are in their infancy stage, we are witnessing perhaps the most exciting and promising robot evolution of all. However, if the public at large is to become the eventual end-user of this new generation of robots, what can we do, as the industry professionals today, to inform, educate, prepare, and involve the public?

Perhaps a first step to international awareness should be an acceptable and understandable definition of service robots. I know when I've tried to explain to people what a service robot is by giving them an example, say, of a robot that is used to perform surgery, a common reaction is "I would never let a robot operate on me!" Only after further pointing out that the robot is just a sophisticated tool used by doctors that is much more precise than any other available tool, do I get a more positive response. Still the word "robot" has left its mark, and for some it conjures up a negative view of a "Frankenstein" or "Terminator" ready to destroy, while, for others, robots are thieves that take their jobs away. On the opposite end of the spectrum are those that have lost faith in the robot industry because there are no "R2D2" or household robots yet available for purchase. Whether the media or science fiction is to blame for some of these images, what can we do to to dispel the myths and create a more positive and accurate impression of robots?

The International Service Robot Association (ISRA), based in Ann Arbor, Michigan, USA, has already taken steps towards this effort by creating a working definition of service robots as "Machines that sense, think, and act to benefit or extend human capabilities and to increase human productivity". Is this definition acceptable or do the words "machine", "think", and "human" seem also to generate fears and memories of fiction's past?

"Robots", "machines that think", "sophisticated tools" – perhaps these are not the best

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way to excite those for the future, perhaps these words utilized by roboticists today are possibly too "techy". Maybe we need to consider what we do more from a layman's viewpoint – what does the public think of this industry? How do they refer to our products? Is a new lexicon required? Should we pursue more humanistic terms? Do we stay with the catchy word "robot" and try to plough through the volumes and reels of misconceptions?

I know I've raise many questions without being able to answer them, but it just seems to me that, before we can explicate service robots to others, we first need to define what they are. Once we know what they are, we can also explain where they are. What fields are utilizing service robots and how many robots are being used? Wouldn't it help, for current and future trends, to know the number of service robots there are in the world and which markets are leading this industry?

We've answered many of these questions with industrial robots and I believe it's time to begin the same with service robots – to define and describe them, and to begin preparing the world for the most important robotic developments ever to come about.