

# Introduction to Current Service Robots

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There are many jobs that are dirty, dull, or dangerous. These are ideal jobs for service robots. These robots are autonomously operated by an internal control system with the option to manually override the operation. As the rapid development of the technologies in robotics, service robots has been being realized step by step. Although the current technologies are still raw and elementary, some achievements begin to come into our sights.

So what are the so-called service robots? The International Organization for Standardization defines a “service robot” as a robot “that performs useful tasks for humans”, that is, service robots automate menial, dangerous, time-consuming, or repetitive tasks, thereby releasing humans to complete more intellectual functions. For instance, we don’t necessarily spend several hours doing housework, cleaning our cars or cooking every day, since this can be undertaken by our service robots. That means we spare more time to enjoy our interests and to examine and reflect our work.

Here we can see some of the examples, which are typical paradigms in the past few decades:

## 1. Agriculture Robots

Agriculture robots are the kind of mobile robots used to accomplish high demanding agricultural missions, with some being autonomous and some being semi-autonomous. They can help farmers in many ways, like, improving crop yields, monitoring environmental footprints and easing a widespread labor shortage. They also help farmers to increase efficiency, reduce operating costs and enable the latest precision agriculture techniques. Agriculture robots play a really significant role in the farmers’ daily laboring.

The latest techniques equipped on today’s agriculture robots include: robotic spraying for weed control, automated smart harvesting of crops, robotic planting and seeding, and robotic pruning and thinning.

## 2. Customer service robots

Customer service robots are intended to interact with customers and finish the most fundamental jobs, with some being humanoid forms and some being non-humanoid forms. They help save labor and reduce working time.

The technologies in the field of customer service robots are still not mature and not able to be used in practice, but the market of customer service robots is experiencing robust growth these years, reflecting the huge improving space and splendid future of the field. Most customer service robots are used to assist customers in finding an item or completing a task. They're being deployed in the retail industry to guide customers around a store, as well as in the hospitality industry. Customer service robots can be found in banks, shopping malls, family entertainment centers and more.

## 3. Logistics robots

This is the most familiar robots for us, I guess, since we have seen such moving circle robots working in a factory several times, thanks to our professors for showing us some videos about the most recent robots. Outside the videos shown in class, in reality, logistics robots truly lead to major productivity gains and profitability for those owners of factories, they automate the process of storing and moving goods as they make their way through the supply chain. Logistics robots make a big difference in storing and transporting products.

The primary application of logistics robots is the use of mobile automated guided vehicles (AGVs) in warehouses and storage facilities to transport goods. These robots operate in predefined pathways, moving products for shipping and storage around the clock. AGVs play an important role in reducing the cost of logistics and streamlining the supply chain

For the development of service robots, I have some opinions of my own:

Bill Gates predicted there would be a service robot at each family's house. I totally agree with him and even I suppose there be most likely a humanoid robot at home helping us deal with the repetitive and boring chores in the future. The AI now is in consistent progress, so future robots should be able to achieve communicating with people fluently and precisely and even emotionally, precisely

recognizing different people and things they met before, efficiently completing the missions their owners give them, even if they are quite hard and dangerous. These are just a recapitulation, to be more precise, service robots in my mind are good-looking, made of environmentally friendly materials and can help take care of children, wash dishes, cook, do entertainments with people, etc. They should move and manipulate faster and more steadily, with lots of AI techniques equipped on them.