It's a Robot World

Korea’s growing robot industry is poised to open the door to the one-robot, one-person era

Robots Industry Worldwide

The role of the robot industry becomes key in the future, as it becomes a core technology for various industries and services. The key role of the robot industry is to support life and work by creating a new manufacturing environment. The robot industry has been growing rapidly in recent years, and it is expected to continue to grow in the future. In 2022, the robot industry is expected to reach $26 billion in terms of sales, and it is expected to grow at a CAGR of 10% in the next five years.

Robots in the Manufacturing Industry

The size of the robot market for the manufacturing industry, which accounts for 75% of the total robot market, stood at KRW 1.6184 billion in 2012, with 140 companies involved. According to the International Federation of Robotics (IFR), Korea shipped 19,000 units of robots for the manufacturing industry in 2012, which placed it at the no. 4 spot in the world following Japan (129,000 units), China (23,000 units) and United States (22,000 units). Robotics is considered a key strategy to revive the manufacturing industry in advanced countries such as the United States and European Union. Moreover, emerging countries such as China and Thailand, which are experiencing difficulties, such as rising wages and a shortage of skilled technical manpower, are actively supporting the introduction, development and dispersion of robots to change their economic structure. In keeping with such trends, Korean manufacturers of industrial-use robots are actively seeking entry into global markets and exporting products not only to Asian countries such as China, India and Thailand, but also to Germany, the Czech Republic and Russia, although the volume is not yet large.

World Domestic Trends in Robot Market Growth

<table>
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<tr>
<th>Year</th>
<th>Domestic Robot Market (KRW 100 million)</th>
<th>World Domestic Market (USD 1 million)</th>
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<tbody>
<tr>
<td>2007</td>
<td>5,543</td>
<td>6,036</td>
</tr>
<tr>
<td>2009</td>
<td>7,643</td>
<td>8,359</td>
</tr>
<tr>
<td>2012</td>
<td>15,082</td>
<td>14,939</td>
</tr>
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One can attribute such an outcome to research and development (R&D), infrastructure development and various kinds of policy support, such as the enactment of the Intelligent Robot Act in 2008 and establishment of the First Intelligent Robot Master Plan in 2009 after the selection of the robot industry as the next-generation growth engine in 2003. In 2014, the Korean government plans to invest a total of KRW 167.3 billion in robots, including KRW 69.1 billion for the development of key fusion technology (R&D), KRW 15.9 billion for the distribution and dispersion of intelligent robots, KRW 21.6 billion for the development of the robot industry cluster and KRW 24.2 billion for the construction of Robot Land.

Moreover, the Korean government implemented the Distribution of Robots for Small- Medium Manufacturers project to promote the use of robots in basic industries such as casting, molding and welding, which are used as “process technology” for manufacturing in other industries. The project contributed greatly not only to the improvement of productivity and quality in the robot-applying enterprises but also to the production and export of supply robot manufacturers. Launched this year was the second phase of the project to transform the vulnerable processes of small- and medium-sized manufacturers into high-value-added manufacturing processes creatively converged with the robot system. When the second phase of the project is completed, the use of robots is expected to be expanded greatly in various manufacturing areas, as actual reference of robot application will be available.

Service Robots

The size of the service robot market was KRW 331.4 billion in 2012. Its growth is led by residential cleaning robots (KRW 190 billion) and educational robots (KRW 58.7 billion). The residential cleaning robot market has been growing by 94.7 percent annually on average for the past three years due mostly to increased exports to the EU and China. As such, the global market share of Korean companies has sharply increased. According to Wintergreen Research (June 2012), the global cleaning robot market grew from USD 400 million in 2009 to USD 600 million in 2012. It is expected to grow further to USD 1 billion in 2015. As such, the export of Korean products, which have been earning rave reviews for their practicality, design and efficiency, is expected to increase greatly.

Development of Regional Robot Industries

In addition to R&D and support for commercialization, the Korean government has been trying to jointly develop regional infrastructure with local municipalities to develop regionally specialized robots linked with regional industries. The government established KIRI, the world’s only public agency for the promotion of the robot industry, in 2010. It supports the construction of Robot Land, a large theme park centered on robots, in Gyeongnam and Incheon. It also developed infrastructure such as the Busan Marine Robot Center (KITech in Busan), Micro Medical Robot Center and Home Appliance Robot Center (Gwangju Technopark in Gwangju) and the Underwater Robot Base Center (KIRO in Gyeongbuk). The development of robot enterprises linked with regionally specialized industries is expected to contribute significantly not only to the development of entire robot industries, but also to the improvement of regionally specialized industries.

Forecast and Policy Direction

In 2012, the Korean government announced a future robot strategy, with its vision being to become “A Country That Best Uses Robot Technology for Improving Citizens’ Quality of Life” by 2022. The strategy presented the goal of a KRW 25 trillion Korean robot market by 2022. It also predicted that the one-robot, one-person era would arrive once the man-robot community is developed. The government is preparing the 2nd Intelligent Robot Master Plan (2014 - 2018), which will present various projects based on the main policy of securing early leadership in the market for robot technologies by focusing on and establishing a converged/ composite, open robot industry ecosystem and developing the government-wide, interregional coordination. When the policy is successfully implemented, Korea will lead the global robot markets, and the competitiveness of Korean industries will significantly improve.

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