R&D and Intellectual Property

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R&D Strategy

Sharp conducts R&D activities from the perspective of users with the goal of consistently delivering new levels of value and joy to people around the world. To accomplish these goals, we focus on two approaches to R&D. The first is to create original products by blending our many unique technologies. The second approach tackles fields of technology that are new to Sharp using open innovation and cooperation with partners. These approaches allow us to perform distinctive, speedy, as well as efficient R&D.

Free-Form Display

Sharp developed the Free-Form Display, which can be shaped to meet a wide range of user needs thanks to the incorporation of IGZO technology and proprietary circuit design methods. Conventional displays have a drive circuit called a gate driver around the perimeter of the screen's display area. These displays are usually rectangular because they require a certain width for the bezel to cover the gate driver. In the Free-Form Display, the gate driver's function is dispersed throughout the pixels on the display area. This allows the bezel to be considerably smaller, which gives freedom when designing the shape of a display. We plan to enter the mass-production stage at the earliest possible date and work to create applications that need displays with sophisticated designs.

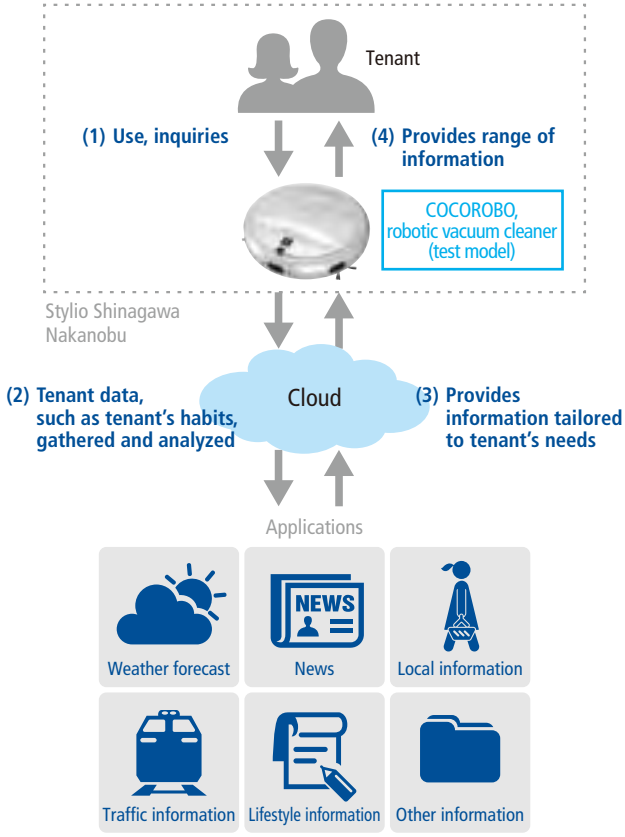
Free-Form Display (prototype)

Development of Voice Communication Technology

Sharp developed cloud-based voice communication technology. We have already conducted verification tests to ascertain the effectiveness of the voice interface, conversation patterns among users and robotic appliances, and the usefulness of the information provided to users.*1 In the future, we aims to produce home appliances that offer users comfort. To accelerate the creation of this kind of new cloud-based service, in March 2014 we opened "Sharp Cloud Labs"*2 to serve as a vehicle for alliances with outside partners.

*1 Tests were held from April to December 2013 at the Stylio Shinagawa Nakanobu apartment building owned by TOKYU CORPORATION. Tenants used models of COCOROBO robotic appliances made especially for the verification tests.
*2 https://portal.cloudlabs.sharp.co.jp/portal/ (Japanese language only)

Cloud-based services offered via COCOROBO test model



Launch of Microbe Sensor

Sharp released* a microbe sensor that quickly and automatically measures the amount of airborne microbes, such as bacteria and mold spores. Previously, a skilled technician measured airborne microbes manually after cultivating microbes over several days. But thanks to this new product, microbes can be measured automatically in as little as 10 minutes. When linked to a computer via network, the sensor can collaborate with an air quality control system and can be controlled remotely. The microbe sensor is particularly useful for food processing plants, pharmaceutical factories, and other facilities that need to maintain strict environmental standards.

* Released by Sharp Manufacturing Systems Corporation in October 2013 (BM-300C).

Microbe sensor

Intellectual Property Strategy

Sharp views its intellectual property strategy as one of its key management measures, promoting it in a coherent manner with business and R&D strategies. By aggressively targeting acquisition of patent rights, Sharp works to secure competitive edges in its Product Business and Device Business and thus reinforce its operational foundation. In advancing its intellectual property strategy in a consistent manner, Sharp's Intellectual Property Center, under the Corporate Research and Development Division, undertakes management of overall strategy and cooperates with patent-related entities within each Business Division and site. At the same time, the Center organizes various initiatives related to intellectual property through an approach of mutual cooperation. Sharp has clearly delineated the fields that are central to each business group to conduct strategic patent development* close to the front line. Sharp also obtains useful patents arising from alliance activities from collaboration with other companies or universities. As of March 31, 2014, Sharp had 18,925 patents in Japan and 24,033 overseas. Sharp utilizes these patents to reinforce its business earnings power.

Sharp is also working to obtain design and trademark registrations based on its brand strategy so as to increase the number of applications and registrations globally.

Sharp endeavors to make full use of its intellectual property in coordination with its business and R&D strategies. In addition, we take actions to protect our intellectual property rights, and we adopt an approach of respecting the intellectual property rights of other organizations. Our fundamental policy is to resolve infringement issues through dialogue. If other organizations fail to respect our intellectual property rights, however, we are fully prepared to enlist third parties, including courts, to obtain a judgment.

Sharp also works hard to reinforce the protection of trade secrets and to prevent leaks concerning its unique and important production technologies and know-how. Also, the impact of counterfeit Sharp products overseas has grown in recent years. In response, we have been promoting measures to clamp down on this practice in cooperation with the relevant authorities and industry associations.

* International patent applications (PCT applications) in 2013: Sharp ranked 6th worldwide among applications (WIPO data)

Topic

IEEE Milestone* Recognition

The 1988 release of Sharp's world-first 14-inch TFT-LCD for TVs was recognized as an IEEE Milestone. The IEEE Milestone recognizes the huge contribution made by Sharp to the development of the LCD industry with respect to the move from consumer CRT TVs to LCD TVs. The honor marks the third time that Sharp has been recognized, with previous milestones received for innovation in development of electronic calculators, as well as commercialization and industrialization of solar cells. It also marks the first time that an individual or organization in Japan has been recognized for three IEEE Milestones.

* The Institute of Electrical and Electronics Engineers (IEEE) is the world's largest professional association covering the electrical, electronic, information, and telecommunications engineering. IEEE Milestones honor innovations that have made important and historic contributions to society