Willow Garage Announces PR2 Robot Community Continues Expansion in Asia, Europe and North America

Samsung Electronics, University of Washington, LAAS-CNRS, and George Washington University All Purchase Personal Robotics Platform

MENLO PARK, CA – December 15, 2010 – Willow Garage announced today that the PR2 community has expanded to 16 leading research labs worldwide. Scientists and engineers at four leading research institutions will now be able to explore the innovative capabilities for personal robots at a much faster pace because of the PR2 robot platform they have purchased from Willow Garage. In the past, researchers had to spend a substantial amount of their time building a robot and its operating system before they could start designing and deploying applications for personal robotics use in homes and offices. The four institutions are:

- CNRS Laboratory of Analysis and Architecture of Systems (LAAS-CNRS) in Toulouse, France
- George Washington University in Washington, DC;
- Samsung Electronics in Suwon, Korea; and
- University of Washington in Seattle, WA.

The goal at Willow Garage is to lay the groundwork for a revolution in personal robotics by providing the hardware and software platforms upon which robot scientists can develop applications. The combination of PR2 and the open source Robot Operating System (ROS) means that researchers benefit from immediate time to innovation. Right out of the box, the PR2 and ROS provide a complete platform for research and development in the personal robotics field.

PR2 was first delivered to eleven leading robotics research institutions at no cost in May 2010. In September, Willow Garage announced that the PR2 was available for purchase.

"The PR2 has only been commercially available a short time, but we are proud to say that there are already PR2 robots on three continents," according to Steve Cousins, President and CEO of Willow Garage. "It's inspiring to see the PR2 community grow so quickly. All of us at Willow Garage are looking forward to hearing about the research conducted at Samsung Electronics, UW, LAAS-CNRS and GWU."

One PR2 has already arrived at **Samsung Electronics Co., Ltd.** in Suwon, Korea. Samsung Electronics, the world's largest electronics company, is using the PR2 to enhance their existing robotics research. South Korea is one of the most technologically advanced countries in the world and one that has enthusiastically embraced personal robotics. The country is hoping to put a robot in every home by the year 2020.

A Principal Engineer at the Robot R&D group of Samsung Electronics said: "We were very impressed with the many applications rapidly developed and coming out of the PR2. For our corporate research, we felt that the PR2 is one of the best research platforms available now."

Following a recent visit to Willow Garage, another Principal Engineer and Software Architect of Samsung Electronics added: "ROS provides many tools and features -- such as visualizer, logging, publishing and code-sharing -- while also easily integrating with our own existing software assets. Because PR2 and ROS are so tightly integrated, we can easily test cutting-edge code written by other research labs. We were programming on and navigating the PR2 in less than one day."

Another PR2 has arrived at the **University of Washington** in Seattle. Joshua R. Smith, Associate Professor, Computer Science & Engineering and Electrical Engineering at UW, is now the proud owner of a brand-new PR2. Professor Smith and his colleagues took delivery of the robot on November 2. Professor Smith recently joined the faculty at UW following six years at Intel Research.

"I've been in the position of having to build the hardware and software platforms prior to undertaking past robotic research, so I can truly appreciate PR2 as a platform upon which we can innovate right away," according to Smith. "It's also just as important to UW that we have a passionate worldwide community – both for PR2 and for ROS – to which we can contribute, and learn from."

Another PR2 is heading to Europe; specifically France's **CNRS Laboratory of Analysis and Architecture of Systems**. LAAS-CNRS is a research unit of the CNRS, the French National Center for Scientific Research and is associated with the University of Toulouse. Overseeing the research on the PR2 is Rachid Alami, Directeur de Recherche of the Robotics and Artificial Intelligence Group. His past research has included Mobile Robotics, Control Architectures, Multi-robot cooperation, Task and Motion Planning, Personal and Service Robotics, and Human/Robot Interaction. Alami and his colleagues have earmarked the PR2 for the development of high level interactive and cognitive functions in the context of an ambient intelligent system for assistance, such as housekeeping for seniors. It will complete the future set of interactive robots of the new experimental building developed in the framework of ADREAM program dedicated to ambient intelligence.

"LAAS-CNRS elected to purchase the PR2 robot from Willow Garage because the robot has technical characteristics that are far superior to other systems currently marketed," according to Alami. "PR2 is the only complete personal robot specially configured and designed for research on the personal robot assistant. In addition to the robot capabilities, we are particularly enthusiastic about the fact that Willow Garage provides access to an extensive library of high quality software, developed jointly by the most prestigious robotics research laboratories."

Alain Filipowicz, Secretary General of LAAS-CNRS, added: "With PR2, researchers will be able to dive right in to research core functions without having to invest heavily in assembly, robot configuration, or development of basic software."

Evan Drumwright, Assistant Professor in Computer Science at **George Washington University** in Washington, DC is the most recent proud owner of a new PR2 from Willow Garage. Drumwright's focus has been on discovering ways to get robots to autonomously perform occupational tasks. The means to this end is through advances in dynamic robotic simulation, motion planning, and collision detection algorithms.

According to Drumwright: "In establishing a mobile manipulator robotics research effort at GWU, I looked for a robust, reliable hardware platform that could perform typical occupational tasks. PR2 provides a ready-to-go R&D platform that allows us to focus on novel robotic technologies and applications. PR2 software tools, especially the simulator, add unprecedented research productivity to our efforts. In addition, because the PR2 platform is used with ROS by researchers around the world we are also able to share our code with the larger ROS community so that other groups can replicate our work, and we also plan to build on top of code already released by other groups."

About Willow Garage
Based in Silicon Valley, Willow Garage is a company dedicated to designing robots, developing open source robotics software, and the advancement of the open source personal robotics community. Willow Garage has developed a hardware platform called the PR2 (Personal Robot 2), and an open source software platform called ROS (Robot Operating System). The ROS software that Willow Garage contributes is BSD-licensed, making it completely free for anyone to use and change, and free for other

companies to commercialize. A major goal is to enable robotics innovation and ensure that the adoption of robotic technologies is a transparent process with positive societal impact. Willow Garage actively engages research labs and companies as partners, collaborators, customers and advisors in the development of both their hardware platform and open source software, and also supports researchers who would not otherwise have the bandwidth or funding to open source their work. For more information, please visit: http://www.willowgarage.com and follow on Twitter @willowgarage.

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