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Robotic VISION Technologies granted patent for Random Bin Picking, becomes 6th patent in portfolio

BLOOMFIELD HILLS, Mich. (Jan. 2, 2014)—Robotic VISION Technologies, LLC, has been granted a United States patent for its Random Bin Picking (RBP) software, a breakthrough in technology that overcomes the obstacles of automated systems to locate and move parts randomly placed in generic bins.

Random Bin Picking has been characterized by researchers in the robotics industry as the "Holy Grail" because of the problems associated with separating and moving parts into industrial production stemming from overlap and occlusion, signficant lighting variability and shadowing, a lack of distinct features and collisions with other parts, tools and bins.

RVT's RBP is an advanced solution in the field of Vision Guided Robotics, integrated into the company's recently released eVisionFactory 6.5 software platform. It has dynamic features that opens new doors to robotic automation.

"We're thrilled to have been awarded a patent from the United States for our Random Bin Picking software," RVT President and Chief Executive Officer Rick Weidinger said. "It's further recognition that we're the leader in Vision Guided Robotics. RBP is our sixth patent and we're earning them with groundbreaking technology. We have several more patents pending and our scientists and engineers continue to work on developing even more advanced technology.

"The patent for Random Bin Picking is important. RBP has been known as the 'Holy Grail' because finding solutions to inherent problems has been so difficult. It

is an area of industrial use that can make the manufacturing process move more quickly and efficiently and less costly."

RVT Vision Scientist Dr Shawn Hunt, a Ph.D. in computer engineering, was an integral member of the team who has been working on RBP and eVF 6.5, which was released on Dec. 19.

"Our sixth patent strengthened our Random Bin Picking portfolio," Hunt said. "It's been a busy year for RVT. In addition to releasing eVF 6.5, we have been extremely busy working on the next generation of Random Bin Picking algorithms. So far, the results have been encouraging as we have reduced the cycle time by a factor of 10 in some cases. We have been able to do this by leveraging our experience in multi-core and GPU processing, as well as fusing data from multiple sensors.

"This sensor fusion approach allows us to offer Random Bin Picking for applications that have plenty of discernable features such as automotive connecting rods as well as parts where traditional computer vision techniques, such as shiny parts or deformable bags, fail. This will allow us to deliver our technology to a wide variety of markets. It's possible they could be for aerospace or defense or distribution center applications.

"The sensor fusion approach is revolutionary for us in that it has allowed us to drastically reduce the time needed to find the next part to pick out of the bin. We've had RBP installations in the past, but this significantly reduces the cycle time. It also allows us to offer RBP on features where using a camera would not be optimal."

RBP is a trademark of Robotic VISION Technologies, LLC.

For more information on Robotic VISION Technologies, visit www.roboticvisiontech.com.

About Robotic VISION Technologies, LLC

Robotic VISION Technologies LLC, a privately held company, is a recognized leader in the field of intelligent machine vision. eVisionFactory (eVF) is the brand name of the RVT vision guidance software platform that allows robots to "See, Think, and Do." RVT's software and technologies enable image recognition, machine vision and robot guidance processes in industrial and non-industrial markets. RVT's main 3D vision products feature the Henry Ford Technology Award-winning single-camera 3D software product in addition to its proprietary validation tools – AutoCal, AutoTrain and AccuTest. In addition, RVT has won the prestigious BAE Systems Chairman's Award for its technology and work efforts on the Advanced Weapons Assembly government contract. Customers using RVT's products include Ford, GM, Chrysler, Honda, Toyota, Nissan, Harley-Davidson, Boeing and Johnson & Johnson. RVT's eVF software platform is installed in hundreds of systems worldwide and operates every day on over \$500 million of capital equipment. Robotic VISION Technologies is headquartered in Bloomfield Hills, Mich., with an office in Washington, D.C., and will open an office in Munich, Germany, during the first quarter of 2014.

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