



Robotic VISION Technologies Completes Acquisition of International Patents in Pioneering Vision Technology

Fairfax, VA – Feb 18, 2020 — Robotic VISION Technologies, Inc. (RVT) announces today its acquisition of 5 new patents and 3 pending patent families covering its development of machine vision technology in the United States and China.

An innovator and first-mover in machine vision, RVT is pleased to acquire these patents developed from the Company's strategic collaboration that began in 2014 with its IP partner, Allied Inventors. The 5 granted patents from the U.S. Patent & Trademark Office and the Chinese CNIPA are now registered as the wholly owned property of RVT, including reduction to practice in domestic industry.

RVT now owns the rights to, use, sell, offer for sale, or sublicense over 20 patents. RVT has long been active in creating and protecting new IP to usher in the next generation of machine vision and structured light-based 3D image detection. Far from simple industrial robots, these new assets put the "THINK" in See Think Do™.

The Company also has two families of patents pending in China and the US addressing the ubiquitous problem of Random Bin Picking® and human-machine interaction on assembly lines throughout both nations. These new acquisitions also apply to RFID tracking of objects in 3D, such as in fulfillment centers, and facial recognition in digital commerce.

"This transaction represents the culmination of a very careful IP strategy aimed at the protection, clarification, and declaration of intellectual property as RVT grows in the US and abroad. We now welcome these intellectual property assets as wholly owned parts of our valuable technology portfolio," said Founder & CEO Rick Weidinger. "Throughout the development by a global network of inventors, we had always known we would bring these patents completely into RVT to practice and enjoy along with our other intellectual assets. Today is the day that promise is fulfilled."

The 5 wholly-owned patents brought into the RVT proprietary IP portfolio include:

1. **3D Object Rotation-Based Mechanical Parts Selection through 2D Image Processing** (US 9,934,563) A technique using white balancing and object-rotation in

machine vision systems to recognize locations of 3D objects with 2D images. This method is vital to machine vision in bin-picking by turning bad lighting into an advantage.

2. **Incidental Robot-Human Contact Detection** (US 9,868,213) All animal life generates small vibrations in a particular range of frequencies. By mounting inexpensive sensors on a robot, contact of a human being can be detected instantly and the robot stopped safely. Enables the robot to start up again once the human contact is safely outside the sensor zone.
3. **Stable Grasp Point Selection for Robot Grippers with Machine Vision & Ultrasound Beam Forming** (US 9,889,564) A technique that utilizes feedback from a 3D vision system or ultrasound measurement to select grasping points on an object. Enables robot to adapt pick positions on the fly, but also gives flexibility to use other methods of guiding a gripper in vision-guided automation.
4. **Orientation-Based Hashing for Fast Item Orientation Sensing** (US 9,969,514) A technique in which a hash table of pre-computed objects in a finite number of poses is used to reduce the vision system cycle time by over 10X in cases where the parts come in a known set of orientations. Combining hash tables with vision is a general machine learning breakthrough used in RVT's technology, but also in artificial intelligence writ large .
5. **Sensor-based Safety Features for Robotic Equipment** (CN ZL 2014800825553) Cameras and illumination systems are combined in order to detect potentially hazardous conditions for robots, people, or mechanical automation used in close proximity to each other. When a hazardous condition is detected the speed and direction of the equipment is automatically adjusted to slow or stop potential contact between people and/or pieces of automated equipment in manufacturing settings. The vision-based intelligent "safety net" can then automatically restart the equipment once the hazard condition is removed from the monitored area.

RVT also retains the exclusive global license with rights to grant sublicenses to other technologies, including the projection of dot patterns to perform object recognition including facial and other forms of machine-vision identification of people, places, and things.

"This new set of patents and exclusive licenses is the result of the insight and amazing efforts from RVT's partnerships and software development team," said Vice President, Strategy & Software Development Paul Weidinger. "We are deeply committed to enlarging the moat around our vision-based products and services in both the US and abroad."

"An important new part of our IP strategy is our relationship with Chang Tsi, a renowned and premier patent law firm in the Chinese capital of Beijing," said Chief Optical Scientist Dr. John Brownlee.

“Working with them, we have been awarded a Chinese counterpart to our US automation safety family: a vision-based robot-agnostic safety monitor to prevent injury to man or machine. For example, in China a ‘robot’ is often thought of more holistically as something that might include an assembly line or conveyor, not just an isolated 6-axis arm with a tool on the end,” Brownlee said. “Our pivot to China as a key market is core to both our development and sales efforts, and we have a world-class partner in Chang Tsi in securing our technical success in manufacturing around the world.”

SEE, THINK, DO™

About Robotic VISION Technologies Inc.

Robotic VISION Technologies Inc., a privately held machine vision software company, is a recognized leader in the field of 3D Vision Guided Robotics (VGR™). RVT’s 2D, 2.5D, and 3D vision guidance software platform allows robots to “**See, Think, Do™.**” RVT’s software and technologies enable and improve image & facial recognition, machine vision, machine learning, and robot guidance processes in industrial and non-industrial markets. RVT has recently developed a 3D vision guidance system for the collaborative robot market and has been designated as a Certified System Integrator by Universal Robots (UR) as well as tested and accepted into the UR+ certified third-party preferred solutions vendor for machine vision software - UR’s cornerstone robot ecosystem. The Company’s main 3D vision solution was honored with the Henry Ford Technology Award as well as the BAE Chairman’s Award for outstanding service. Major manufacturers using RVT’s products include Ford, General Motors, Chrysler, Honda, Toyota, Nissan, Harley-Davidson, Boeing, and Johnson & Johnson. RVT’s Vision Factory™ software platform is installed in hundreds of systems worldwide and operates every day controlling over one-half billion dollars of capital equipment. RVT holds over 20 patents for its award-winning technology.

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For more information, visit roboticvisiontech.com or email us at the RVT Media Group: contactus@roboticvisiontech.com.