Robotic VISION Technologies Announces its Exclusive Patent License to 5 Newly Granted Patents to Advance Machine Vision Automation

Silver Spring, MD – Apr 9, 2019 — Robotic VISION Technologies, Inc. (RVT), announces today its exclusive license to 5 newly granted patents from the U.S. Patent & Trademark Office. RVT owns the exclusive right and license, without geographic limitation and for the life of the patents, to use, sublicense, or sell licensed products under the recently granted 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. RVT now owns a portfolio of 20 granted patents, exclusive licenses, and pending future-thinking inventions.

"Our efforts at RVT have been to create a valuable business around our protected technology," said Founder & CEO Rick Weidinger. "We have strived to create a moat surrounding this valuable business in the middle. Our moat is our patent and exclusive license portfolio protecting our best-in-class machine vision and 3D facial recognition imaging technology."

The 5 newly granted patents from the US Patent & Trademark office are the following:

1. **3D Object Rotation-Based Mechanical Parts Selection through 2D Image Processing**
   A technique using white balancing and object-rotation in machine vision systems to recognize locations of 3D objects with 2D images. May be applied to recognition of industrial parts in a factory, or automatic 3D modeling of machine parts for printing.

2. **Orientation-Based Hashing for Fast Item Orientation Sensing**
   A machine learning technique in which a hash table of pre-computed parts 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. May be applied to automatic part handling for merchants that do most of their business via delivery. Eliminates as many as 60% of the steps from conventional pose estimation.

3. **Incidental Robot-Human Contact Detection**

   All human life generates small vibrations in a particular range of frequencies. By mounting inexpensive sensors on a robot contact, a human being can be detected and the robot stopped safely and then restarted once detection exits. Detectors may be applied to robotic arms, as well as cages, handrails and supports. Works in cluttered environments and in dark, smoke, and fog.

4. **Stable Grasp Point Selection for Robot Grippers with Machine Vision & Ultrasound Beam Forming**

   A technique that utilizes feedback from a 3D vision system or ultrasound measurement to select grasping points on an object. Enables robots to adapt pick positions on the fly. Using ultrasonic beam forming, newly encountered objects with rigid, hard or soft surfaces can be more effectively grasped.

5. **Coordination of Multiple Structured Light-Based 3D Image Detectors**

   Patterns of structured light other than simple laser lines are created that increase the accuracy and speed in which the 3D vision computation can take place by overlaying multiple colors and type of line and dot patterns on a smooth featureless object. This is, among additional uses, a facial recognition method and process of controlling how light is shined on an object to provide a more accurate input to any vision system through structured elimination.

"This new set of patents and exclusive licenses are the results of the insight and amazing efforts of RVT's partnerships & software development teams," Weidinger said. "The company could not be better positioned for growth into the next generation of machine vision."

"Intelligent vision will continue to change markets and require technical excellence as we embrace it at RVT," said Chief Optical Scientist Dr. John Brownlee. "These new patents will protect people working with robots, robots working in challenging environments, and handling the hardest of vision problems including facial recognition in mobile and security settings," Brownlee said. "It's a long time coming, but we have invested in a technical ecosystem that can wed things like collaborative physical human-robot interactions and spoof-proof 3D vision to provide better machine intelligence across myriad realms of innovation."

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 vision 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, Duracell 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 a portfolio of 20 granted patents, exclusive licenses and pending future-thinking inventions.

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