

OCULAR ROBOTICS LIMITED (OCR)

- **Successful Army Innovation Day Demonstration for Ocular Robotics**

As reported earlier Ocular Robotics was invited to demonstrate an immersive telepresence system at Army Innovation Day 2016 (AID16) in Canberra last month. The capability demonstrated allows a soldier to view a remote site very naturally without having to put themselves in danger.



The system can be used on a robot like the one used at AID16 shown above and in this [video](#), or it can be mounted on the outside a manned vehicle allowing the occupants to have a level of understanding of the environment outside the vehicle that could only be replicated by sticking their head out and looking around putting themselves in considerable danger.

The demonstration was viewed by a large number of defence personnel including those assessing whether Army will move forward with a trial of the system.

The key to the whole system demonstrated at AID16 is OCR's RobotEye platform's capability to deliver almost immediate replication of the motion of the operator's head by the RobotEye vision system, thus eliminating the motion sickness effect that plagues all other attempts at similar systems.

The demonstration involved an operator wearing a head mounted display as shown in the adjacent image which showed the view from the RobotEye vision system mounted on the robot. The operator then had complete freedom to move their direction of view as if they were located on the robot. Simultaneously, the stabilized RobotEye vision system removed all motion due to the movement of the robot allowing the operator full control of their direction of view.

● **United States Defence Advanced Research Projects Agency (DARPA) Selects Ocular Robotics to Present on Counter UAS Capabilities**

Also reported earlier was OCR's invitation to present at a workshop held by the Defence Advanced Research Projects Agency (DARPA) in Arlington, Virginia. The workshop aimed to bring together teams where the members have capabilities that can form part of the response to this complex threat and which together can provide a comprehensive counter to sUAS (small drones) system for the protection of mobile military forces from attack by swarms of small drones.

The workshop proved very productive for Ocular Robotics with discussions proceeding with multiple potential partners for the Mobile Force Protection solicitation due for submission in January 2017.

The poster forming the basis of our presentation is shown below.

ROBOTEYE COUNTER sUAS CAPABILITIES

SIMULTANEOUS VERY RAPID AND PRECISE DIRECTING OF OPTICAL SENSORS AND SOURCES

RAPID LONG-RANGE SEARCH

- WIDE FIELD OF REGARD
- RAPID MOTION RESULTS IN FAST UPDATES
- HIGH-RESOLUTION FOR LONG RANGE DETECTION
- HIGH POINTING PRECISION FOR ACCURATE LOCALISATION

SENSOR FLEXIBILITY

- EO
- IR
- LIDAR
- HYPER-SPECTRAL
- RADAR

LASER EFFECTOR DIRECTING

- SLEW TO TARGET IN UNDER 100ms FROM ANY LOCATION
- REMAIN LOCKED ON HIGHLY DYNAMIC TARGETS
- OPTICAL PATH CONFIGURABLE FOR HIGH POWER EMITTERS

RAPID AND PRECISE MULTI-TARGETING

- VISIT UP TO 20 LOCATIONS PER SECOND
- PIXEL LEVEL REPEATABILITY IN EO/IR
- COMPLETE FLEXIBILITY OF LOCATION DESIGNATION
- TRACK HIGHLY DYNAMIC TARGETS
- HIGH RESOLUTION IMAGERY FOR ACCURATE IDENTIFICATION

ROBOTEYE PLATFORM

<h4 style="color: #00AEEF;">ULTRA HIGH MOTION BANDWIDTH</h4> <ul style="list-style-type: none"> • SLEW RATES UP TO 10,000°/s • ACCELERATIONS OF >100,000°/s² • MILLISECOND SETTLING TIME 	<h4 style="color: #00AEEF;">PRECISION</h4> <ul style="list-style-type: none"> • PIXEL LEVEL ANGULAR EO POINTING ACCURACY • ANGULAR RESOLUTIONS OF UP TO 0.0025° (0.044 MILLIRADIANS) 	<h4 style="color: #00AEEF;">SIMPLIFIED ENVIRONMENT PROTECTION</h4>	<h4 style="color: #00AEEF;">EXCELLENT IMMUNITY TO SHOCK AND VIBRATION</h4>	<h4 style="color: #00AEEF;">COMPACT AND LIGHTWEIGHT</h4>
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LIDAR

EO

HYPER-SPECTRAL

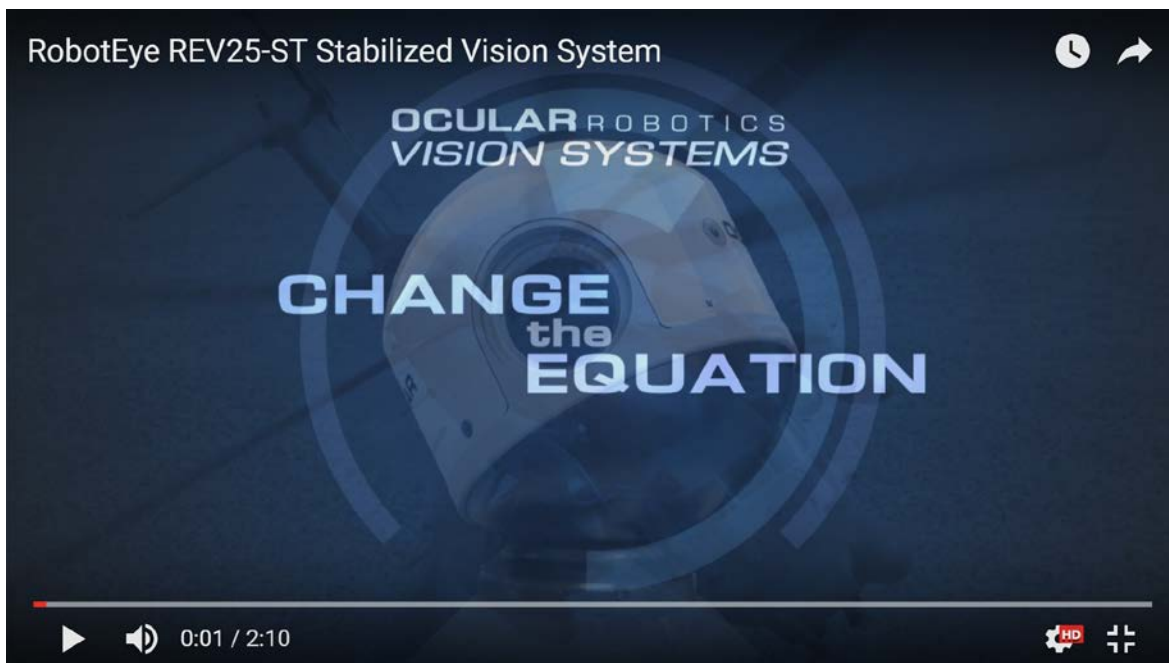
LIDAR

EO

IR

- **Ocular Robotics Releases New Video of Stabilized Vision System in Action on a Mobile Robot**

Ocular Robotics' REV25-ST is shown in this [video](#) mounted on a Marathon Targets' autonomous robot platform, while the robot autonomously executes a loop up and down a steep driveway ramp with tight turns on either end the REV25-ST holds its view of the opposite side of the road.



A handwritten signature in black ink, appearing to be "MA".

Mark Bishop - Director, CEO