

# NO-HANDS INSPECTION AND REPAIR IS COMING TO OFFSHORE WIND FARMS

## MAINTENANCE CHALLENGES FOR OFFSHORE WIND TURBINES

- Height and size puts workers in dangerous conditions
- Workers must be harnessed and abseil down blades for inspection and repair
- Offshore weather is harsh
- Workers cannot access equipment when weather is bad
- Delays cost time and money



## PROPOSED AUTONOMOUS SOLUTIONS

- Proposed autonomous solutions
- Drones already are used for inspections
- Crawling robots are being developed to walk the turbine blades
- BladeBug, a U.K. startup, developed a robot to walk blades and other surfaces using suction grippers
- It now is being tested on an offshore wind turbine

## IN THE FUTURE, ALL OFFSHORE MAINTENANCE WILL BE PERFORMED AUTONOMOUSLY

- The Multi-Platform Inspection, Maintenance and Repair in Extreme Environments project in the U.K is developing solutions
- The vision includes autonomous ships that would remain at sea
- Robotic solutions like BladeBug and drones would work from the ship
- Drones could lift inspection and repair robots to their high-altitude perch, and pick them up when finished
- Technicians working from shore would monitor and control the work

