

# Robot VOIED Defeat Scenarios



## Robot VOIED Defeat Scenario

Supervision of autonomous systems is often performed by a Soldier in a moving vehicle. To maintain situational awareness and provide proper oversight, the Soldier must cope with the motion of the vehicle on which he is riding and the motion of the vehicle he is monitoring.

The disparity between the reported motion of the monitored vehicle and the physical motion experienced by the Soldier can create problems similar to vertigo. Techniques are needed to reduce the Soldier's mental stress in this demanding situation.



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One component of the VOIED defeat strategy is to trigger the IED in a way that prevents loss of life. Minimizing casualties removes the strategic value of IEDs to our enemies. Operation of vehicles that clear routes by attempting to detonate IEDs is obviously hazardous. The Soldier tasked with the supervision of a route clearing robot vehicle must be located beyond the physical effect of an exploding IED but close enough to understand the environment in which the robot is operating. Additionally, mission duration requirements discourage the use of low level, fatigue inducing, teleoperation.

Techniques are needed that blend the high level reasoning of a remote human supervisor with the local autonomous capability of a robot to provide effective, long term mission performance.



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Even as sensors improve, there remains a desire to be physically present when assessing a new situation. Human intuition and reasoning are powerful tools that can see through the enemy's plan when given the right information. Unfortunately, if the enemy plan you wish to understand involves IEDs, then being physically present may risk lives.

Autonomous robots can maneuver into dangerous situations without endangering Soldiers. Robotic sensors can measure the environment with precision beyond human capability. The challenge is to put all this information at the disposal of an innovative Soldier's mind. Unfortunately, the communication between an autonomous robot and a remote Soldier is limited. Continuous video feeds are bandwidth intensive and static in their perspective.

Technology is needed that respects bandwidth limitations while giving a remote investigator the feeling of being physically present.

