MILITARY PERSONNEL: EASING THE DEMANDS OF DEPLOYMENT

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Input devices such as speech recognition systems, object tracking systems, gesture recognition systems and sensors embedded in devices are continuously evolving to accommodate the increasingly high levels of sophistication expected out of this emerging technology.

A Navy mechanic works on a complicated repair to a nearly inaccessible section of the superstructure of an aircraft carrier. A video-enabled drone hovers alongside the ship, piloted by an expert located at an on-shore facility back in the US, and they talk through the procedure face to face using video conferencing mounted to the shipman's protective helmet. The sailor on the ship can look through his visor and see the expert miming the repairs he needs to make, as well as get access to repair manual files, videos and data sheets. Once the work is done and tests are complete, he uploads a video record of the fix, fills out the "paperwork" using speech-to-text technology, and calls it a night—he's finishing up a 12-hour shift and needs to hit the mess before bed.

Meanwhile, on the bridge, the carrier's captain is monitoring all critical operations from a video command center in which integrated system alerts automatically trigger video meetings within the chain of command on shore as needed. He can also watch every inch of the ship, monitoring personnel and activity without leaving his chair. If he sees something amiss, he can launch a quick video conversation with the seaman at the other end, using the ship's on-board Wi-Fi and the personal video devices each sailor receives at deployment. This evening, he notices a problem with the weapons system; it appears to be a minor issue with warning lights, rather than the ordnance, but he immediately contacts the team on duty and has them run through a safety check while he watches from the bridge. Once he's satisfied with the results, he uploads a recording of the check to the ship's online log; should any follow-up action be necessary, he and his men will be able to refer to the real-time video data.

An hour later, a seaman visits the infirmary with a suspected ear infection. The ship's doctor isn't an ear, nose and throat specialist, so she conferences in an ENT from a base stateside who conducts an exam using video-enabled diagnostic equipment. As the doctor on board inserts the scope into the patient's ear canal, the ENT can see the real-time feed, ask her to maneuver the device as needed, and make a diagnosis. It's an infection; he wires a prescription for antibiotics to the ship's pharmacist, who checks the patient's electronic medical record to identify any allergies or potential drug interactions, fills the prescription, and has it delivered via drone to the infirmary.

Elsewhere, a group of seamen stay in shape by attending an interactive martial arts class led by an instructor in Okinawa. The sensei can zoom in on each individual to provide personal instruction and encouragement. Other sailors pass their free time with interactive gaming, enabling them to view and talk with other players from around the world in real time. One sailor meets with her husband and realtor to a do a virtual walk-through of a home they're considering purchasing, and they easily bring in a mortgage broker to discuss their loan application. Another attends a visit to the pediatrician with his wife and newborn son using video conferencing; two weeks earlier, he was able to participate in his son's birth—he even coached his wife through her breathing and watched as the OB cut the umbilical cord in his place. For deployed sailors, nothing is as good as actually being home—but the video capabilities on board the ship make the distance and time apart much easier to bear, and allows them to focus on the very real and serious work to be done.

Video conferencing has taken several form-factors—room based, desktop based and mobile based. Next-generation video technology is expected to be revolutionary, as it traverses to a device-less or a transparent format.

Holographic telepresence projects three-dimensional, life-size images of a transmitted two-dimensional image on a transparent glass or a wall. It has a high level of realism and the ability to track and interact with users at the other end.