Demonstration of Mobile Audio and Multiple Speaker Panning Using VAS

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VAS will be used to generate spatialized audio in an augmented reality system for mobile military combatants. Users of this augmented reality system will receive augmented sound including communication from team members, threat alerts, or navigation beacons. By spatializing the team communications, the user will get position information about the other members of the team. The threat alerts will provide direct information about the location of the threat, and the navigation beacon will provide a source to walk to. The system will broadcast three sound streams to headphones worn by the listener. An microgryo head tracker will be attached to the headphones and head orientation will be transmitted to the VAS server. Using this information, VAS will spatialize the three streams in real time to fix them at the intended locations. The three sounds will include a synthesized bell, a live speech stream, and a looping sampled sound.

Another demonstration will produce Vector Base Auditory Panning (VBAP), a new three dimensional spatialization technique using speaker panning. VBAP localizes a sound by choosing an appropriate triplet from the speaker configuration and panning the sound within the triangle formed by the speaker triplet. The clear advantage of VBAP is that is conveys both azimuth as well as elevation information, and it can support an arbitrarily large number of speakers. VBAP was incorporated into VAS be creating a new specialized localizer. The base localizer provides rendering algorithm with necessary information such as listener location and orientation, speaker locations, and sound source location. The availability of this information made possible the implementation of a VBAP localizer. Again, VAS was not modified to support this functionality beyond the creation of a new localizer.