Virtual ACS 2021 Surgeons and Engineers: A Dialogue on Surgical Simulation Meeting

Promoting Technology and Collaboration

The Advanced Modular Manikin Developers Kit

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Background: As part of the Advanced Modular Manikin (AMM) project, our team created a number of AMM platform prototypes. These prototypes were in the human form. To provide interested parties with a tool for AMM compatible module development a reference design integrating all AMM Central Operating Resources or C.O.R.E. into a single non-manikin unit was created.

Technology Overview: AMM C.O.R.E. runs all required software, provides system resources and allows connection of one external AMM module. The self-contained unit is powered from 120VAC mains. It provides pressurized air, two individual fluids and a waste line to an external AMM module according to the standard fluidics specifications. The compute platform consists of an AMMDK embedded system to control the fluidics system and a Network Manager embedded system to run the AMM system software, provide networking services and PoE power injection for the AMM connector. Service access to fluids is separated from power equipment and electronics.

Potential Application in Surgical Simulation and Education: The AMM C.O.R.E. represents a full implementation of the AMM 1.0 standards, ready for developers that have an interest in developing new plug in modules that are AMM compliant. To date different groups have created modules as diverse as a fasciotomy leg, IV arm, intubation head, various tablet based medical devices, such as a virtual ventilator, IV pump etc. The AMM open standards platform is being published under Creative Commons as open source allowing developers to benefit from the DoD's investment in open source simulation tools that can be built upon reducing time to market and considerable savings in R&D.

Potential Opportunities to Collaborate: The CREST team at UW is continuing work to create new modules and collaborate with both Industry and Academia. Furthermore, new funding opportunities are available from the DoD to build upon this platform.


ADVANCED
MODULAR MANIKIN
C.O.R.E.™