'America's Army' game transformed

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Sometimes an idea gains an unintended purpose and becomes something else entirely. Vacuum tubes, originally designed as a signal amplifier for radio technologies, became useful in the first computers. Though intended as an instrument for the hearing impaired to communicate with others, the telephone found a much wider use as a staple of social communication. In the case of the United States Army's video game, "America's Army," a recruiting tool has become the center of many training and simulation programs.

"America's Army," released as a free video game for the Mac OS X, Windows and Linux operating systems in 2002, has managed to gather a user base of over 6.5 million registered players. The game, based on the graphics engine for the popular Unreal video game series, has been lauded for incorporating more realistic elements than some of its competitors in the first person shooter video game genre.

In 2003 and 2004, the "America's Army" game began to grow into several new forms. Repurposing the game, simulation and training programs have since emerged which use the game's engine as the core of these new programs, the Army being able to design custom software applications as needed.

"Trainers and simulators allow for modified versions of the game to be used almost anywhere, especially if a financial resource is limited," said Colonel Casey Wardynski, Director of the Army Game Project. "This allows for all sorts of variables to be included at virtually no extra cost."

To date, several projects have used the "America's Army" game engine and its code base as a core. The CROWS (Common Remotely Operated Weapons Station), a basic skills trainer, currently deployed as a training tool in Balad, Iraq, places a soldier in an armored Humvee environment and has that person operate a weapon via a remote control joystick and a display. The "America's Army" video game software provides the graphical elements of the program and custom scenarios can be designed to include encounters with improvised explosive devices, insurgent activities, ambushes and situations where marksmanship becomes crucial.

Other programs currently in use include a trainer program for the Javelin missile system. Although originally designed around different software, the America's Army game engine code gives the program enhanced functionality such as linked weapon systems, enhanced artificial intelligence and more realistic human characters within the simulator. The program is slated to be included in training at Fort Benning in early summer.

The "America's Army" game engine also serves as the core engine for the Joint Program Manager for Nuclear, Biological and Chemical Reconnaissance Vehicles program. Here, the player drives a vehicle through simulated contaminant zones while interfacing with a chemical, biological and nuclear mass spectrometer detection device. System administrators and trainers can use the software to create customized virtual contaminant zones on the fly.

Finally, the "America's Army" game core has been used in the Army's Tac Bot robot project. A robot, developed by iRobot and customized around chemical and biological detection, uses a modified version of the America's Army software for its programming.

Customization has become a key factor in the America's Army program

and the software, which is becoming a common application environment. Firms external to the America's Army project, including allied interests from Britain and Canada, have approached the America's Army lab, run out of the Software Engineering Directorate at Redstone Arsenal, Alabama for custom applications such as convoy training, personnel recovery, combat readiness command and safety training.

Once interested, parties can approach the lab, receive a tour of current applications based on the America's Army game, meet for half a day, then leave to work out requirements for a custom application. Upon returning a few weeks later, requirements can be established for the application, which can be rapidly prototyped with the user returning in one to two months to provide additional specifications.

Under the America's Army program, repurposed code can be applied to almost any project. A program, built from the ground up, may take up to 12 to 14 months and over a million dollars to develop into a viable simulation or training application. With the America's Army code base, the same application can be written in two to four months for a fraction of the cost, according to Colonel Wardynski.

"An application can take from a few months to a year and from tens of thousands to hundreds of thousands of dollars depending on the application and the hardware," said Frank Blackwell, Program Manager of "America's Army."