



MANEUVER AVIATION AND FIRES INTEGRATED APPLICATION (MAFIA)

MAFIA provides swift communication through command levels and quickly generates precision coordinates for accurate, predictable, organic and immediate precision and non-precision fires in urban and rural environments. Government-developed imagery and cartography loaded on a smartphone/tablet end user device or mounted family of computing systems provides an accurate, 3D display of the globe.

MAFIA acts as a command and control system by creating, sending and receiving situational awareness and fire mission data between MAFIA EUDs, other C2 systems, external sensors and external weapons systems using a selection of radio devices and local area network connections. MAFIA's ability to communicate with these systems allows it to solve the ongoing and growing unmanned aircraft system threat through several defeat methods.

MAFIA FEATURES

Army Globe Engine

AGE is a network independent, 3D mapping tool developed at CCDC Aviation & Missile Center's Systems Simulation, Software Directorate for use with MAFIA.

AGE provides a precise depiction of the earth from all viewpoints by using a standard of digital datasets, including a matrix of terrain elevation values paired with satellite images. Situational awareness icons display on the AGE map to provide accurate conditions of a specific point or item.

To create Category 1 points and mensurated targets, AGE interacts with Precision Fires Imagery that is loaded on the phone. It can access the PFI without being connected to a higher network, acting as an independent targeting software.

Inertial Measurement Unit

IMU uses AGE to provide observation of terrain and other objects as seen in expanded reality. IMU provides fast and accurate location reconciliation, situation awareness, planning, and target location.

Video on Demand, Supervised and Direct Soldier Borne Sensor (SBS) Control



Video on Demand receives and displays full motion video received from camera systems. The video display provides a real-time view of the target, allowing accurate and precise identification and targeting.

Supervised control allows the MAFIA operator to command a UAS to examine a pre-determined location to identify points of interest, such as high value targets. Direct control allows physical, directional control of a Soldier borne sensor via onscreen directional pads. A forward observer can use this feature to fly a UAS beyond line-of-sight for item identification and point of interest location accuracy.

FOR FURTHER INFORMATION:

U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT
COMMAND AVIATION & MISSILE CENTER:

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Target Coordinate Mensuration (TCM)

TCM correlates the expected target position to a highly refined location to create a Category 1 coordinate which reduces target location error. Munitions such as coordinate-seeking rounds require these precise targets for firing.

“Wheel of Death”

The Wheel of Death is MAFIA’s mission wheel. It contains a circular series of buttons to allow quick access to coordinate data, mission initiation, target refinement and situational awareness icon creation and circulation.

MAFIA Association Software (MAS)

MAS is a stationary server system installed on a Mounted Family of Computer Systems that collects and analyzes airtrack data received from various sensors (e.g., Doppler radars and Electro-Optical/Infrared camera systems). It evaluates the multiple airtracks received from these sensors to output a single, consolidated airtrack to the MAFIA C2 system. This greatly simplifies airtrack identification for the Detect—Identify—CUAS construct.

Precision Fires Dismounted & Mounted

PF-D & PF-M are the Army’s Program of Record version of MAFIA and enables cross domain fires loaded with the AGE mapping application which was developed by AMRDEC’s Software Engineering Directorate. PF-D & PF-M provide the same functionality as the Science and Technology (S&T) product MAFIA, while fulfilling its own set of requirements.

PF-D & PF-M provided situational awareness and fire mission data from forward observers. FOs can rapidly communicate through command levels and quickly generate precision coordinates for accurate predictable, organic, immediate precision and non-precision fires.

PF-D & PF-M perform all processes using imagery and cartography loaded on the EUD and is network independent.

IMPORTANCE TO THE ARMY

MAFIA’s primary significance to the Army is automating the multi-domain capabilities, Land—Air—Sea—Cyber—Space, at the lowest tactical level. The automation of software reduces the work load, greatly enhances the information to decision time for forward observers/FIST teams, and sets the conditions for cross-domain fires expansion across the maneuver formations below the brigade combat team.



OUTLOOK FOR THE FUTURE

MAFIA software will transition to PEO C3T Program of Record Precision Fires-Dismounted and Precision Fires-Mounted, making MAFIA the POR system for all dismounted and mounted fire support applications in every brigade combat team and the most proliferated C2 system in the Army. Today, the MAFIA science and technology baseline has over 23 joint and government transition partners, with a full suite of multi-domain capabilities supporting all five branches of service.

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