

PGMM: A New Application for an Existing Fuze

Precision Guided Mortar Munition

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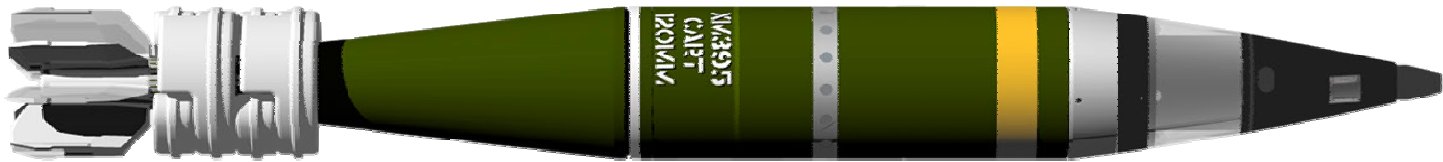
Agenda

- Program Background
- System Overview
- Typical Mission Video
- PGMM Fuze and ETFM commonality
- Fuzing System Design
- Electronics Design
- Summary



Program Background

XM395 - PGMM

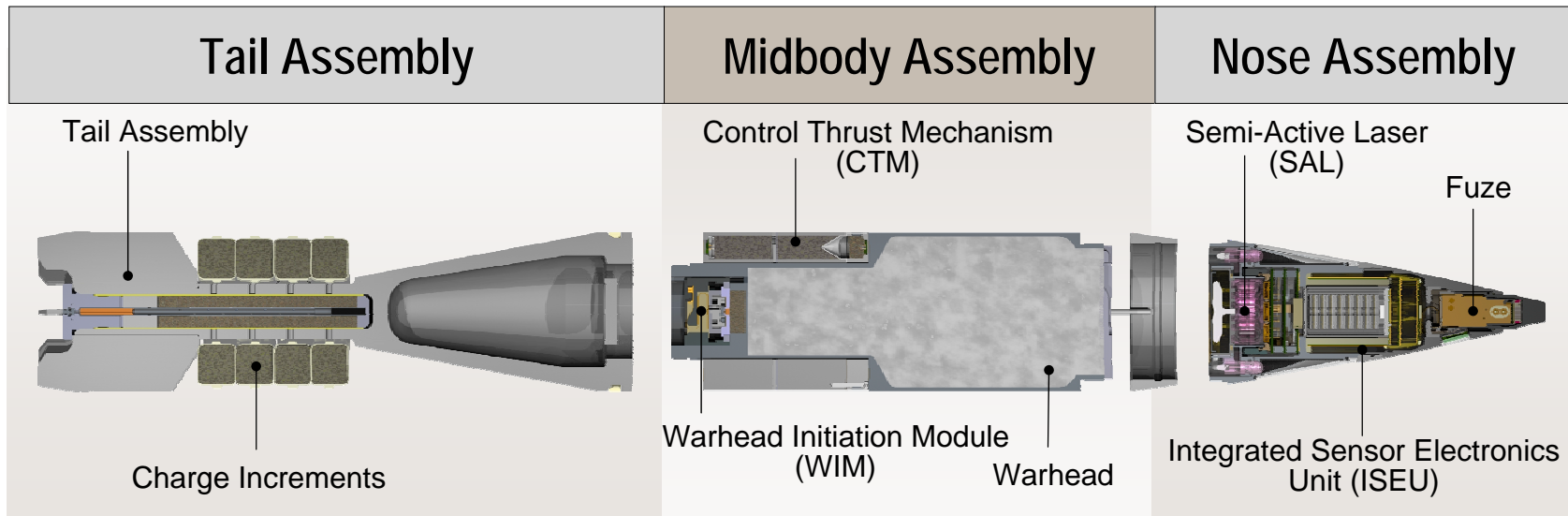


Precision Guided Mortar Munition

Designed to provide point target accuracy against threat targets in urban theater where minimal collateral damage is desired



Program Background



Precision Guided Mortar Munition (PGMM)

- Lethality – shall have the ability to defeat or incapacitate personnel protected within specified point targets.
- Range – shall be able to engage targets at ranges from 1000m to 7200m.
- Compatibility – shall be compatible with all 120mm firing platforms and munition handling systems without adding personnel or equipment to the organization (except for any PGMM-MFCS interface device).
- Reliability – shall have a functional reliability of 90% over a 10-year timeframe.

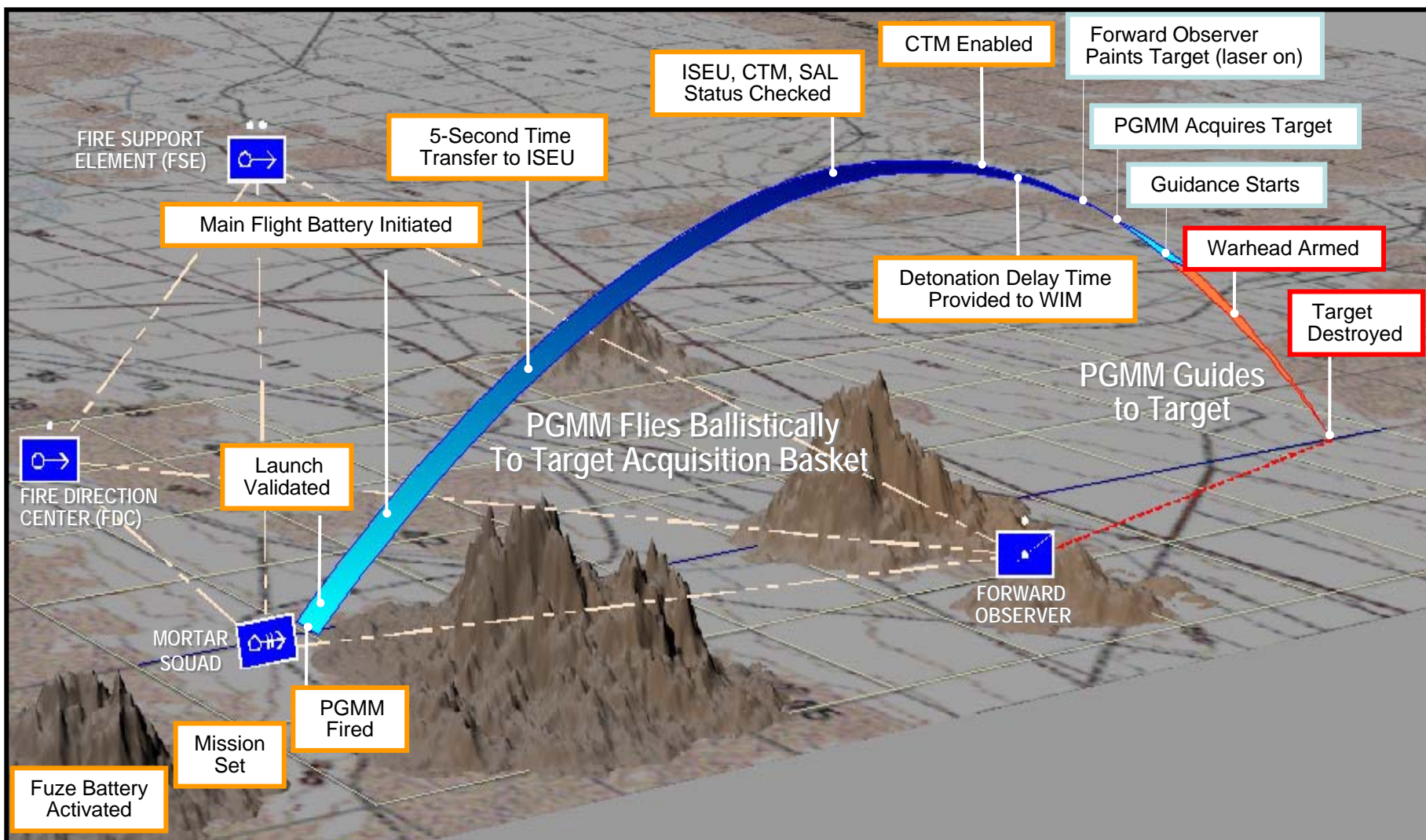


Mission Set Data

- Time of Flight
- Laser Code
- Mode (Delay based on target type)
- QE
- Zone Charge
- Cross Winds
- Downrange Winds



PGMM Fuze Mission Timeline





Typical Mission

Click to start video.



PGMM Key Milestones

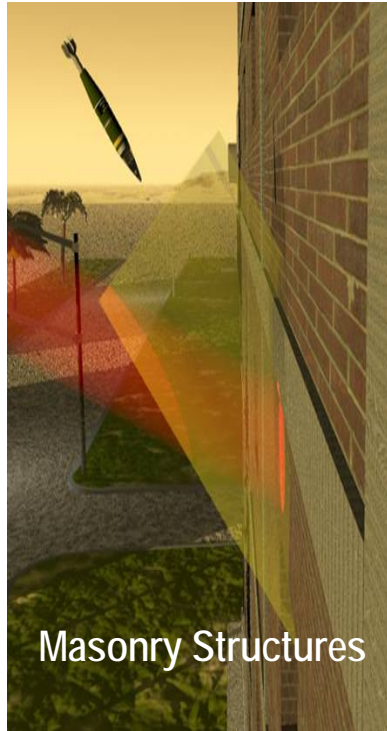
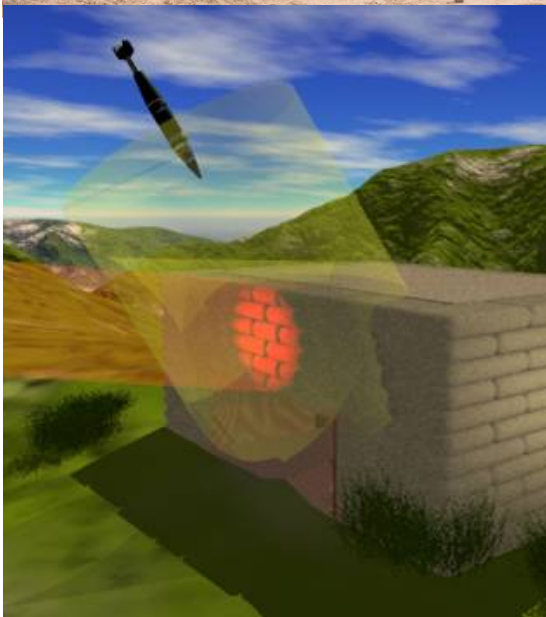
- ✓ Contract Award – complete January '05
- ✓ System Readiness Review – complete March '05
- ✓ Initial Safety Review Board Briefing – complete May '05
- ✓ Preliminary Design Review – complete December '05
- ✓ Tactics, Techniques, & Procedures Demo – complete February '06
- ✓ First Guided Flight – complete May '06
 - Critical Design Review – August '06
 - Fuze Vertical Recovery Test – October '06
 - Tactical Guided Flight Test – November '06



PGMM Target Set



Earth & Timber Bunkers



Masonry Structures

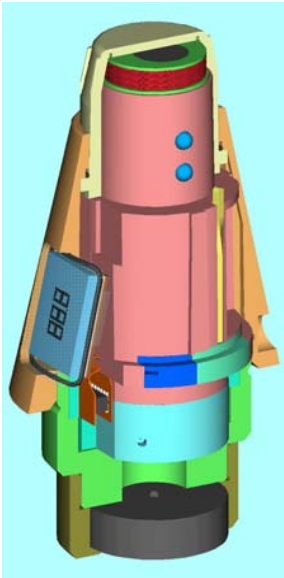


Lightly Armored Vehicles





Fuze Commonality



**XM784
ETFM**

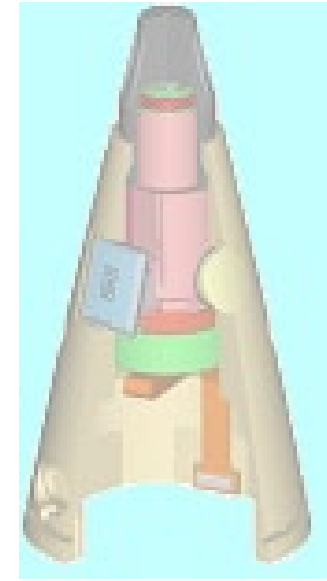
Timed Mortar Fuze
for illumination
rounds

Fuze Assembly

- ✓ Dual-Processor Safety Architecture
- ✓ Fuze Battery & Activation Mechanism
- ✓ Muzzle-Exit Sensor (2nd Safety Environment)
- ✓ Manual Set Capability (LCD, Switch, Button)
- ✓ EOD Function
- ✓ S&A Arming
- ✓ Internal Housings
 - Inductive Set Capability
 - Main Flight Battery Initiation
 - ISEU Data Communication Interface
 - Control Thrust Mechanism Safety Enable

Warhead Initiation Module (WIM)

- ✓ S&A – Set-Back Lock Mechanism (1st Safety Environment)
 - Det-Delay Electronics
 - Explosive Train
- ✓ Indicates Commonality with ETFM



XM395 Fuze

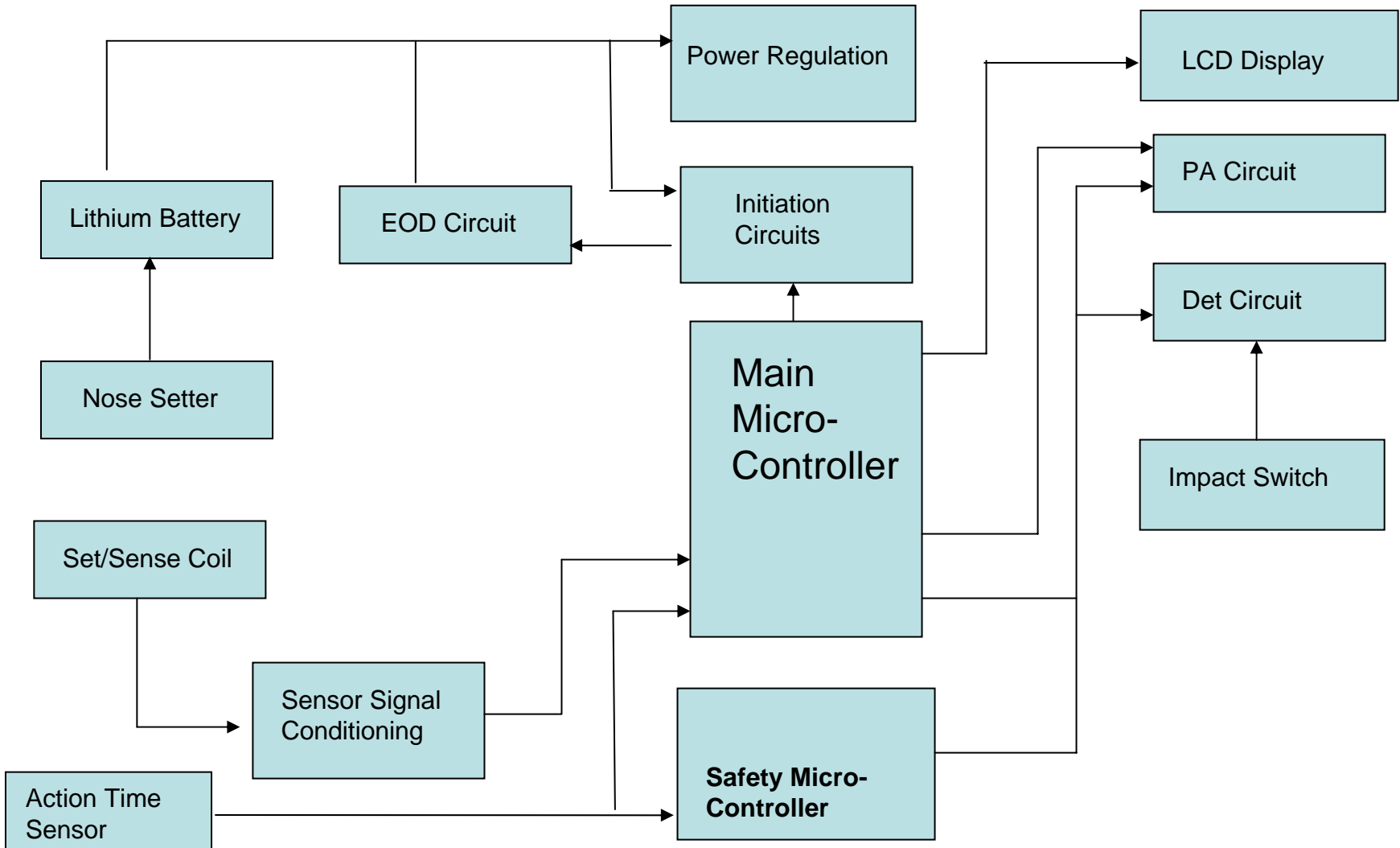


XM395 WIM

**PGMM Fuze Leverages ETFM Design
Designed to Meet MIL-STD-1316E Safety Requirements**

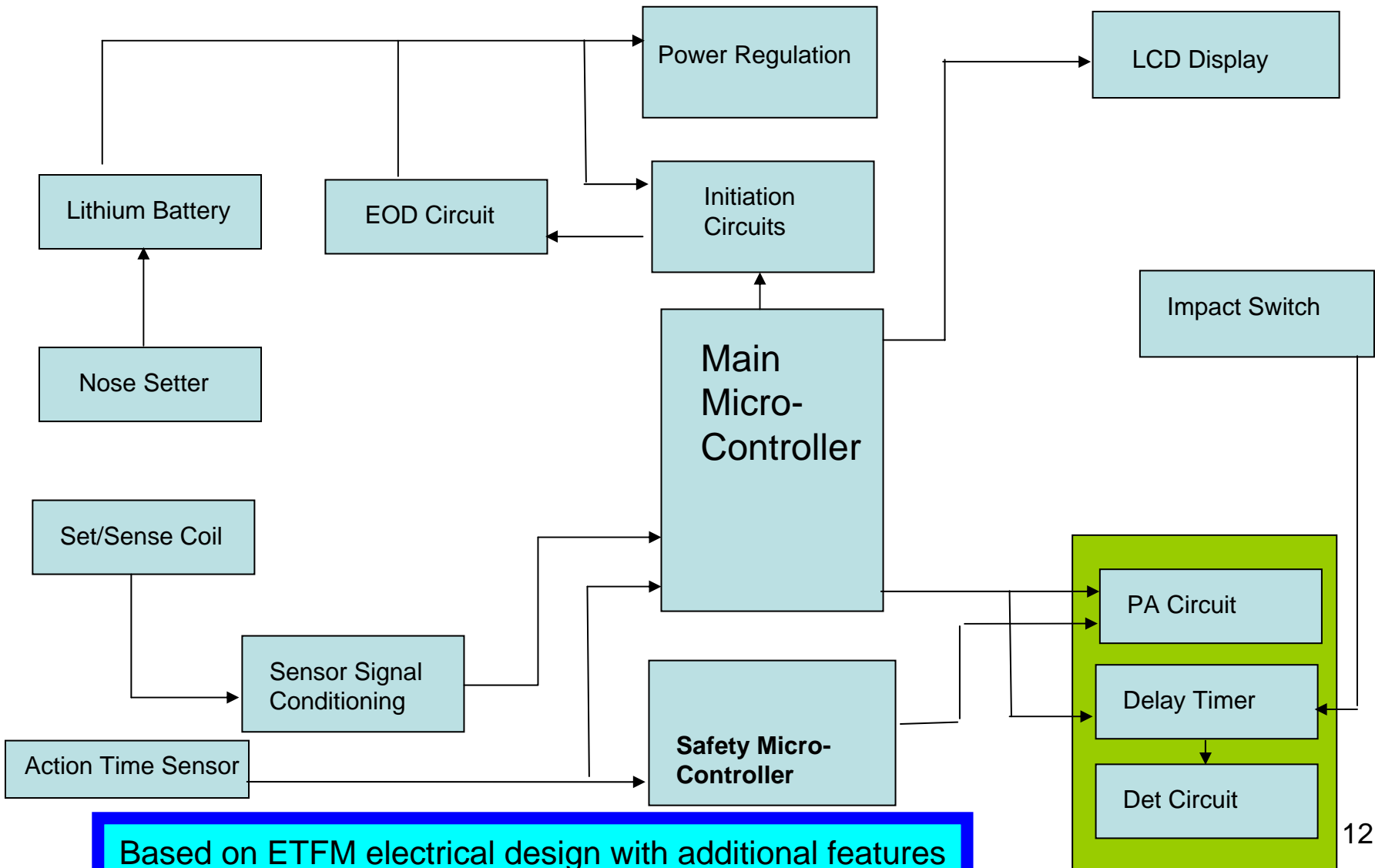


ETFM Electrical Block Diagram



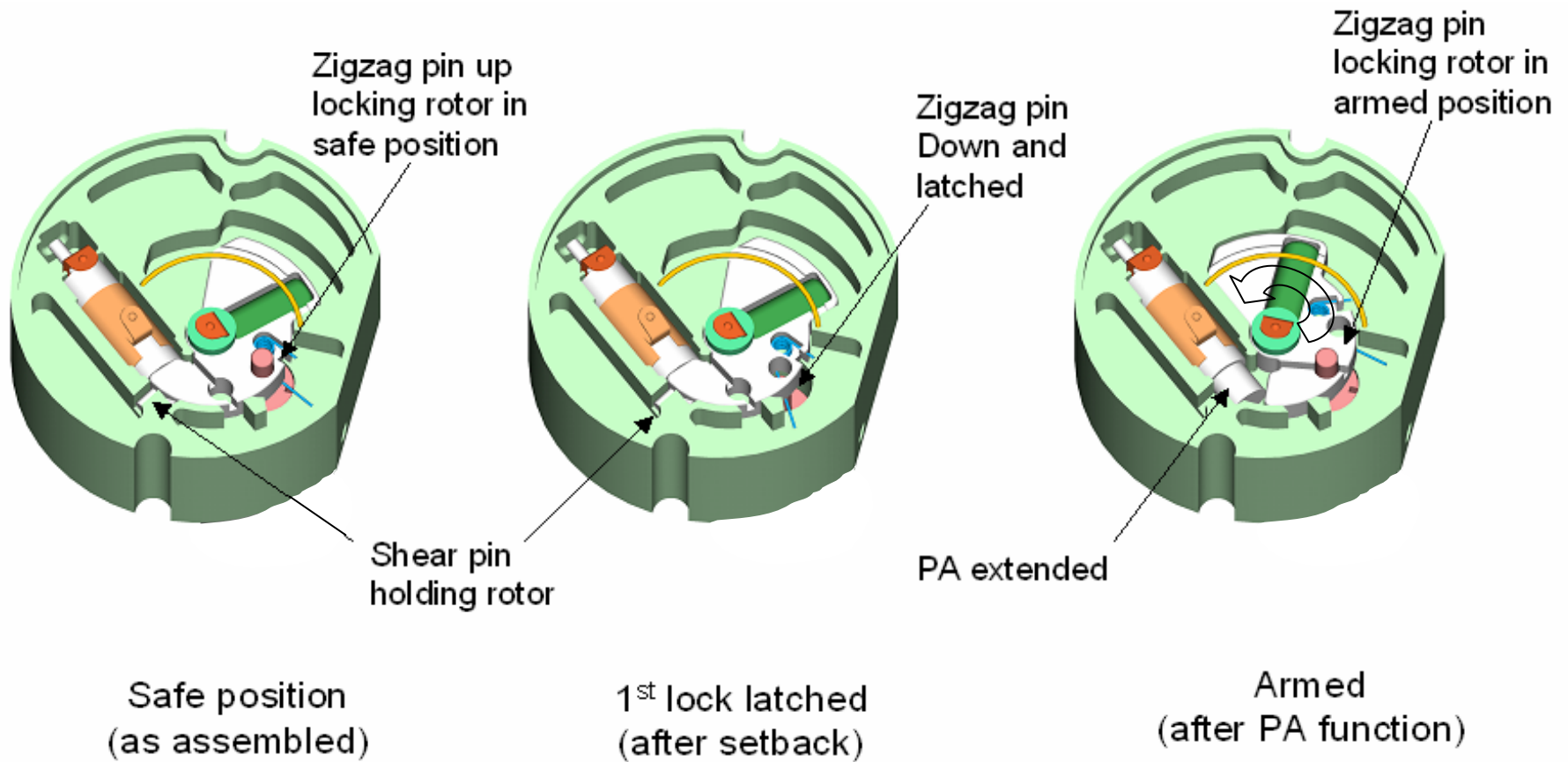


PGMM Fuze & WIM Electrical Block Diagram





PGMM Mechanical S&A



Based on ETFM mechanical S&A design
ATK Patent Number 5,693,906



Soldier Feedback

- The PGMM system is in great demand by the soldiers on the ground in Iraq
 - Maneuver Force: “It definitely builds our confidence. I mean, as an Infantry guy, mortars are one of the things you’re most scared of. If you can put it within a meter, that’s a reasonable window. This thing will be great.” *TTP Demo, Fort Benning, GA, 17 Feb 06*



FO Team
FOS and Laser
Designator



M1064 Mortar carrier
MFCS & PGMM Slug
Rounds



Threat Sniper
Position after PGMM
Hit



Maneuver Squad
Attacking Village



Summary

- PGMM is a unique munition needed by the soldier in today's complex battlefield.
- Utilizing existing design concepts and parts has greatly reduced design time and cost
- Utilizing common parts will continue to keep the production costs down for both PGMM and ETFM
- This modular concept will allow for continued growth as increments are pursued to increase future capabilities.

PGMM:

Truly a New Application for an Existing Fuze