WASP
Wearable Advanced Sensor Platform
An Integrated Body-Worn Electronics System
Including Physiological Monitoring and Location/Tracking
for Emergency Responders Health and Safety
Who Are We?
History of Innovation

Globe MFG. CO.
Leather, Duck and Canvas
CLOTHING
OF ALL KINDS MADE TO ORDER.
Firemen’s Waterproof Clothing a Specialty.
No. 1 FRIEND ST. PLACE - LYNN.
Globe Lock Seam – Trade Mark.

Globe Invented Turnout Gear 1887
Globe Catalog 1903

GLOBE MANUFACTURING CO.
Carroll Street, Pittsfield, Mass.
C. F. H. Freese, Prop.

Originators and Makers of the
“GLOBE”
Water-Proof Garments
FOR FIREMEN!

It's what you want
Because
It's what you need.

The most comfortable suit a fireman ever had to fight fires in.

The TURN-OUT SUIT
Price of Suit $7.25
Price of Coat $5.25
Price of Pants $4.25
Sent by Express, c.o.d. You pay Express.
Globe Introduces DuPont NOMEX 1966

The Globe Coat of Nomex:
It's got guts.

Globe coat that you fear will not wear out, tear and never deteriorate in fire, steam, heat and water. It's not a garment, it's the garment. DuPont NOMEX is unique...the very nature of the fabric limits expansion. It responds to the fireman's need...not merely meets it. A real fireman's fabric. A real fireman's coat.

Globe coat made of Nomex...a coat with a solid state of mind. The coat that will not fail. The coat that will not tear. The coat that will not wear out. The coat that will not expand. The coat that will not improve. The coat that will not deteriorate in water, heat or steam. A real fireman's fabric. A real fireman's coat.

Globe coat made of Nomex...a coat that will not fail. The coat that will not tear. The coat that will not wear out. The coat that will not expand. The coat that will not improve. The coat that will not deteriorate in water, heat or steam. A real fireman's fabric. A real fireman's coat.

Now ... Globe Teams with Du Pont Nomex Nylon

It is a long-standing tradition that a Globe fireman's turnout coat is the best available, one superior in all ways to any other. With this thought in mind we are proud to announce the latest addition to our line: a turnout coat made of Du Pont NOMEX, offering the ultimate in thermal protection - it is one of the toughest fibers ever made with highest resilience to abrasion and tearing.

In addition to its durability and unique thermal protection qualities, the Globe NOMEX coat offers the wearer complete comfort and mobility. The coat, with liner, weighs only approximately six pounds. This is achieved by incorporating a system of components each designed to perform a specific function.

The outer shell is made of a 9.6 oz./yd. NOMEX fabric. This extremely tough material not only reflects heat, but also acts as an insulation and water barrier. The fabric is not closed and has a low air permeability which allows for the passage of a small amount of air to keep the outer surface cool. Because of the air permeability of the outer shell it has a heat dissipator between it and the neoprene coated steam and water barrier which forms the next layer of protection.

This heat dissipator is a knitted NOMEX structure with vertical channels to direct the hot air flow to the bottom of the coat. This air movement is accomplished by a bellows action between the outer shell and the heat dissipator when the wearer is in motion. The knitted structure is used for maximum strength with a minimum weight.

Beneath the heat spacer is a neoprene coated NOMEX fabric which serves as a moisture barrier.

Because of the high heat capacity of neoprene, the final insulation layer is made from a 5 oz./yd. Nomex bonded batt. This batt, which also gives necessary bulk to the coat, is applied to the neoprene coated fabric and an innerlining of rip-stop construction NOMEX fabric for maximum strength and comfort.

The collar is of NOMEX corduroy stiffened and insulated with a knitted heat dissipator. The wristlets are made from a knitted NOMEX fabric.

The construction outlined above represents the optimum protection against heat and moisture for the wearer. At the same time none of the other desirable features, such as light weight and mobility are sacrificed. We believe this combination of comfort and protection found in our new NOMEX coat is the ultimate in fireman's turnout coats available at the present time.

"The Suit That Suits"
Globe G-XTREME
Made in the USA
Why Are We Doing This?
Research Partnerships

• WPI (DHS/FEMA/AFG FP&S 2006): “Integrated Firefighter Locator and Physiological Monitor”
• Skidmore (DHS/FEMA/AFG FP&S 2007): “Effect of Physical Fitness on Physiological Recovery from Firefighting Duties”
• WPI (DHS/FEMA/AFG FP&S 2008) “Fireground Environmental Sensor Monitor System”
• Skidmore (DHS/FEMA/AFG FP&S 2009): “Improving Structural Firefighting Gear – From the Inside Out”
WASP Project Team

- Globe
  Management, Development, Manufacturing
- Zephyr Technology
  Physiological Monitoring Technology
- TRX Systems
  Location/Tracking Technology
- Skidmore College
  Physiology Science
- Propel
  Textile Development
- US Army NSRDEC / National Protection Center
  Funding and Program Management
What Are We Doing?
Why Is An Integrated System Important?
WASP: Integration

- All-in-one physiological and location monitoring system
- Integrate physiological sensors into flame-resistant, base-layer shirt
- Integrate location sensors into turnout gear
- Integrate Bluetooth signals from sensors, optimize for transmission via firefighter digital radio (initially Motorola APX)
- Integrate command station GUI for ease of use
WASP: Use Models

- Work Place Assessment
- Fitness
- Training
- HazMat
- Operations
  - Situational awareness
  - Downed firefighter recovery
  - Rehabilitation
- Data replay for analysis and training
WASP: Validation

• Conduct one-day training exercises with selected Fire Departments to validate functionality and wearability
  – Complete

• Validate the accuracy of sensor enabled shirt physiology data versus the Gold Standard Met Cart in a lab setting
  – In process

• Conduct extended field trials at selected Fire Department and Emergency Responder sites
  – Fall 2012
WASP: Next Steps

- Complete extended field trials
- First generation commercial release
- Department evaluation demos
- Continued development
Questions?

1. Can WASP work with Android cell phones?
2. Will WASP work with trunked networks?
3. How many users will WASP support?
4. Will WASP be compatible with PHASER?
5. How much will it cost?
6. When will our universe come to an end?
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