# NAMC

## NOVEMBER 2020 | NAMC MEMBER SPOTLIGHT

**ARCHITECTURE, SECURITY, AND MODULARITY** — Lynx Software Technologies

**AUTONOMY** — RE2 Robotics

**MOBILITY** — Globe Tech, LLC

**MODELING & SIMULATION** — Waltonen Engineering, Inc.

**PLATFORMS** — Northrop Grumman Remotec

**SURVIVABILITY** — RADA USA

## Interested in being showcased?
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**Note:**
NAMC will not alter submitted content.
Please make sure all information is correct and signed off on by your organization.

# ARCHITECTURE, SECURITY, AND MODULARITY

**Lynx Software Technologies** | San Jose, CA | Nontraditional

**POC:** Ian Ferguson | IFERGUSON@LYNX.COM | www.lynx.com | in

### What is something unique about your product or service?
Isolation of software functionality and system resources in way that ensures no single point of failure and no ability for application to crash hypervisor or other applications.

### What do you consider your organization's differentiator?
Our people that supply "into the gap"; namely the gap between the product we provide and the complex system functionality our customer's demand. In a way that accelerates the path through development, certification and deployment.

### What are you most proud of?
Our long-standing relationships with US Army, Navy and Air Force. The technology inside many mission critical systems that simply must work in a deterministic way ALL THE TIME.

### Capabilities:

Isolation open standards FACE POSIX real-time MOSA

# AUTONOMY

## RE2 Robotics | Pittsburgh, PA | Nontraditional

**POC:** Jorgen Pedersen | jorgen.pedersen@resquared.com | www.resquared.com | in

### What do you consider your organization's differentiator?

We consider the combination of our mobile robotic arms with our autonomy software capabilities to be a great differentiator for RE2 Robotics. Our autonomous mobile manipulation technology enables our customers to interact with their environment, no matter how unstructured or complex. We consider our robotic arms to be human-like because they are dexterous, strong, and capable in a variety of environments. Other companies do a great job with autonomous platforms that can travel from point A to point B. Where RE2 comes in is once you reach your destination and it's time to interact with your surroundings – be it the environment or humans. The ability to interact with the environment in a human-like way makes our technology unique. Most robotic arm manufacturers are limited to controlled environments. We make our mobile robotic systems rugged and capable to perform missions on the ground, in the air, and underwater.

### What do you want other NAMC Members to know about you?

I would like other NAMC Members to know that RE2 Robotics has autonomy software capabilities. Since 2001, RE2 Robotics has been pushing the boundaries of what is possible through robotics. Today, we are focused on taking our technology to the next level by integrating artificial intelligence, computer vision, and machine learning capabilities within our robotic systems. RE2 Detect™ and RE2 Intellect™ make up our autonomy software module offerings.

Unlike other perception systems that must operate in constrained indoor environments with controlled illumination, RE2's systems can perceive the world in unstructured environments. RE2's arms operate using multi-modal 2D and 3D imaging sensors and algorithms that can adapt to various lighting and environmental conditions. Our RE2 Detect perception software can detect and track objects in just about any indoor or outdoor environment.

RE2 is at the forefront of designing truly intelligent robotic systems. Our autonomy algorithms fuse machine learning and computer vision-based techniques to provide human-like decision processing. Traditional autonomy algorithms rely on a single method and only work in structured environments with controlled lighting. RE2 Intellect can handle anomalies that are common in unstructured, outdoor environments, like the way human brains perceive and process information.

Several DoD programs that are benefitting from RE2's autonomy capabilities , including TATRC's Autonomous Casualty Extraction (ACE) program, which will utilize the Company's dual-arm Highly Dexterous Manipulation System mounted to a Kobra unmanned ground vehicle, provided by FLIR Systems, Inc., to autonomously locate a casualty in the field. Similarly, RE2 is developing the Dexterous Maritime Manipulation System (DM2S) with ONR. RE2's DM2S technology will provide Navy personnel with the ability to autonomously perform mine countermeasure missions.

### How did your organization originate?

RE2 Robotics was founded as a Carnegie Mellon spin-off by Jorgen Pedersen, president & CEO, in 2001. RE2 was originally a robotics engineering subcontractor to Carnegie Mellon's National Robotics Engineering Center and worked on unmanned vehicle programs with the Army, Navy, Air Force and DARPA. RE2 received its first Small Business Innovation Research program with U.S. Army TARDEC in 2005 to develop a Small Robot Toolkit manipulator arm with hot-swappable end-effectors. This program was the beginning of RE2's focus on mobile manipulation and enabled the company to grow and thrive.

**Capabilities:**

| Autonomy | Robotic Arms | Manipulation | Manipulator | Perception | Autonomous Behaviors |
|---|---|---|---|---|---|

## MOBILITY

## Globe Tech LLC | Plymouth, MI | Traditional

**POC:** Michal Kepa | mkepa@globe-tech.biz | http://www.globe-tech.biz/

**Which Government Customer would you like to pitch your organization to?**
Globe Tech is pursing the Advanced Chassis, Body and Mobility Handling Prototyping Platforms as well as the General Prototype Fabrication and Integration.

**What do you want other NAMC members to know about you?**
For any advanced chassis, body, and mobility prototyping platforms, our expertise in engineering positions us to manage the entire program from beginning to end with a tailored reporting structure and customized implementation approach. We will work with the Government to understand all requirements, and we have experience working with prime contractors to develop chassis solutions for the JLTV and have built prototype chassis structures based on collaborative design with them. Our team can effectively collaborate to engineer complex projects such as our work on the M163 Explosive Hazard Pre-detonation (EHP) rollers. We have vast experience with reengineering existing systems to reduce weight and improve system/component capabilities such as our work on High Mobility Multipurpose Wheeled Vehicle chassis. Our experiences in this area can be seen through our past performance examples in Volume III. To assist with this technology area, Globe Tech will gather other subcontractors with strong experience in chassis, body, and mobility handling, and in particular, companies with software expertise or history with the specific work the Department of Defense (DOD) requires for a purchase order. These subcontractors will be fully managed by Globe Tech's Project Manager and will act as our team member for this effort with the DOD.

Our strongest bank of experience to date is our current work on the M163 EHP mine rollers for Army Contracting Command. This ongoing project brings together many of the disciplines described in the solicitation. We work to bring together prototyping, building, mechanical, machining, welding structures, fabrication, electrical, and hydraulic systems. We seamlessly merge all components and disciplines to achieve the Army's requirements for the whole system. Currently Globe Tech's team is well on track with this contract, and the lessons learned from this work will play a significant role in the success of this contract. With this project, we have also further worked with high strength materials, armor plates, and armor plate welding. Globe Tech has experience in building several chassis platforms, including 35 prototype chassis units for AM General and Oshkosh Defense for their JLTV prototype order submission. The fabrication of these chassis included frame rail structures and various chassis bracketry (i.e. bumpers, upper control arms (UCA), body mounts, C-mounts, and skid and fuel tank plates).

**How did your organization originate?**
Globe Tech, LLC is a production company that design, develop, engineer, fabricate, and test prototype components and systems for vehicles and mobility platforms. Globe Tech, a Woman Owned Small Business (WOSB), is a metal fabrication company with additional core competencies in stamped products, protypes, tools, gages, and designs, focusing primarily on automotive and military production. We are a woman-owned manufacturing company with a wide range of experience that allows us to serve various industries. Globe Tech is committed to exceeding the needs of each client by doing in depth analysis early in the process and providing quality products and exceptional service for machining, tooling, automation, and system integration. Globe Tech has a history of working with Joint Light Tactical Vehicles (JLTV) and Humvee Vehicles. We developed full system frames, and our team is currently in production of M163 Explosive Hazard Pre-detonation (EHP) Rollers for Army Contracting Command.

**Capabilities:**

| Chassis | Frames | Structures | Brackets | Kits | Mounts | Attachment |
|---------|--------|-----------|----------|------|--------|-----------|
| Metal | Aluminum | Stands | Supports | Vehicles | Ground Systems | Route clearance |

## MODELING AND SIMULATION

**Waltonen Engineering, Inc. |** Warren, MI | *Nontraditional*

**POC:** Thomas Laboda | thomas.laboda@waltonen.com | www.waltonen.com | in

### What is something unique about your product or service?
Waltonen offers FEA Modeling and Simulation (M&S) for suspensions, power train, suspension and structural elements. Along with FEA, Waltonen provides manufacturing and quality M&S. We offer full plant layout and manufacturing simulation including robotic assembly, Human Machine Interface, material flow, and process development. For Quality, Waltonen performs Variation Simulation Analysis (VSA) M&S for new designs, and existing products that are experiencing machining or assembly quality concerns. VSA uses software that analyzes all GD&T, assembly and machining processes and predicts when and where the failures may occur.

### What do you consider your organization's differentiator?
Providing engineering services to the automotive, transportation, aerospace and military markets allows Waltonen to provide best practices that have been developed over multiple products. Working with both high and low volume production, our M&S solutions are customized to meet the unique market needs.

### How did your organization originate?
Founded in 1957, Waltonen has been providing engineering services to the transportation, aerospace and military markets. With over 300 computer workstations, and 500 seats of CAD/CAM/CAE software, Waltonen can support the complete product lifecycle from development through production.

# PLATFORMS

## Northrop Grumman Remotec | Clinton, TN | Traditional

**POC:** Kim Tipton | kim.tipton@ngc.com | www.northropgrumman.com | [in]

### What do you consider your organization's differentiator?
Northrop Grumman Remotec recently launched the Andros Spartan unmanned ground vehicle that builds on the Andros family of systems and our 30+ year record as an industry leader for both first responder and the military.

The Andros Spartan robotic platform is a culmination of the most reliable, versatile and advantageous features offered on legacy and current NGC/Remotec UGV platforms. The Spartan incorporates a proven chassis design that's been in use for more than 20 years with a more recently fielded highly dexterous manipulator. This 8 degree of freedom manipulator allows access to areas with limited space that have traditionally been out of reach or have required a large working area. At under 575lbs (261kg), Spartan is capable of lifting more than 275lbs (125kg) and can reach objects up to 10.5ft (3.2m) in height. The dual articulating tracks with quick release wheels provide modular mobility for both indoor and outdoor use. The platform can achieve a runtime exceeding 6 hours which helps ensure successful completion of a mission without the need to replace or charge batteries. The Operator Control unit consists of a ruggedized laptop with game style controller and offers an intuitive graphical user interface that optimizes the user experience and further reduces time on target.

### Which Government Customer would you like to pitch your organization to?
Remotec has over 37 years of experience designing, producing and fielding Unmanned Ground Vehicles (UGV). Andros UGV systems are repeatedly field tested and continue to prove to be rugged and reliable. Our customer support group provides 24/7 rapid response to decrease downtime and ensure that customer intimacy remains of key differentiator. Remotec has over 2800 systems fielded in 36 Countries.

### What capability gaps are you able to fill and which industry colleagues would you like to know about them?
Public safety and military EOD teams worldwide have applauded the dexterity and capability of the recently fielded Andros FX manipulator and have repeatedly requested we incorporate this innovation in a lighter weight platform which we have accomplished with Spartan. Moreover, the ability to upgrade existing legacy platforms as well as provide the ability to use all of the robot accessories previously purchased dramatically lowers the total cost of ownership while concurrently delivering increased capabilities. With a total design effort of less than 8 months, Northrop Grumman Remotec is proud to have met the response to industry with such focused dedication and urgency while ensuring we continue to provide the most reliable and capable platform in its class.

**Capabilities:**

| Dexterous | Mobility | Intuitive | Versatile | Advanced | Sustainable |

# NAMC

# RADA USA

## SURVIVABILITY

**RADA USA** | Germantown, MD | Traditional

**POC:** Charlene Caputo | ccaputo@radausa.com | www.radausa.com

**What is something unique about your product or service?**
RADA USA's compact tactical radars are software-defined, AESA (Active Electronically Scanned Array), multi-mission, configurable military radar platforms providing full hemispheric coverage against multi-domain threats. Our software defined radar systems are open architecture, and compliant to the current Modular Active Protection System (MAPS) baseline, allowing for a plug and play capability to interface with virtually any system.

**What do you consider your organization's differentiator?**
All DoD Services are currently utilizing or in the process of testing RADA USA radars. RADA USA radars are the radars of choice for the Joint Force and have been operationally proven in Southwest Asia among other global locations.

**What capability gaps are you able to fill and which industry colleagues would you like to know about them?**
a. Artificial Intelligence (AI) - Assists Warfighters with threat target identification, characterization, and data convergence

b. Multi-function, multi-mission sensors- Counters Air and Missile threats in a single hardware solution which saves on space, weight, power, cooling, training and sustainment.

c. Enabled Sensing - Allows for more accurate and automated collection of environmental data with less erroneous noise/clutter.

**Capabilities:**

| Multi-Mission | MAPS | Active Protection Systems | Counter UAS |
|---|---|---|---|
| Software Defined Radar | USA Sourced Manufacturer | | |