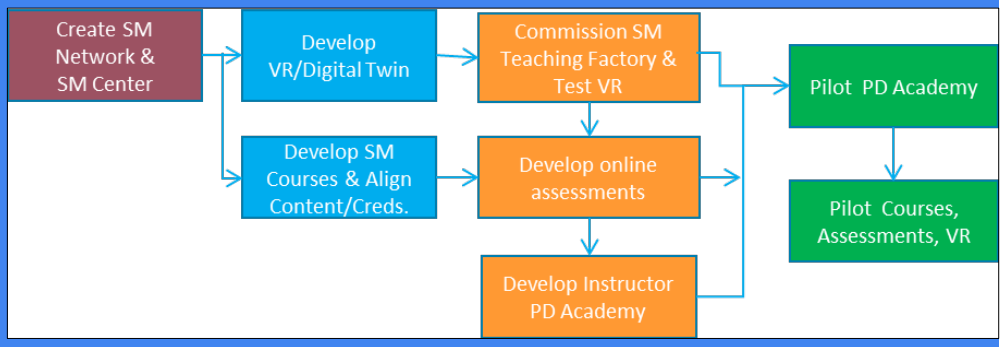
Industry
Manufacturing

Technology
Education &
Workforce Development

CESMII
THE SMART MANUFACTURING INSTITUTE

PROJECT CASE STUDY

Scalable Smart Manufacturing Workforce Development Community Model



PROJECT LEAD

Amatrol

PROJECT TEAM

Texas A&M University

PROJECT OBJECTIVE

Create and demonstrate the effectiveness of a scalable community workforce development model, which includes flexible, low-cost teaching tools and assessments that can be implemented nationwide.

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Smart Manufacturing Training Center Equips Workers with Advanced Technical Skills

BENEFITS TO OUR NATION

By combining the practical expertise of manufacturing industry professionals with the advanced research of academic institutions, this collaboration ensures that smart manufacturing training is relevant, future-proof, and aligned with the latest advancements in manufacturing automation technologies. Virtual Reality enables immersive, hands-on learning in complex manufacturing processes, enhancing the skills of trainers and, in turn, improving the proficiency of the workforce. This collaborative, community-driven endeavor not only accelerates the adoption of smart manufacturing technologies but also fosters innovation and strengthens our nation's global competitiveness in manufacturing.

BENEFITS TO INDUSTRY

This community collaboration model ensures that training programs are aligned with the latest technological advancements in automation, equipment connectivity, and data-driven manufacturing. VR-based training offers an immersive, risk-free environment where trainers can simulate real-world manufacturing processes, leading to more effective and efficient skill development. This approach accelerates the adoption of smart manufacturing technologies across the industry, reduces training costs, and enhances workforce readiness.

PROJECT DESCRIPTION

TECHNICAL APPROACH

- Establish the Smart Manufacturing (SM) Center at Texas A&M University to lead the development of the VR/Digital Twin software and develop an instructor professional development academy
- Consult a network of colleges and industry to develop SM courses/assessments (in collaboration with Amatrol staff)
- Pilot the new courses and teaching materials including the VR/Digital Twin software
- Align online materials to Smart Manufacturing courses and Smart Automation Certificate Alliance credentials

ACCOMPLISHMENTS

- Created a Regional Network for Smart Manufacturing Training consisting of 5 college systems and 10 industry partners
- Established Smart Manufacturing Training Laboratory at Texas A&M University
- Developed Smart Factory VR software and user lab manual
- Integrated VR and Digital Twin software to the CESMII Smart Manufacturing Innovation Platform
- Created 12-course Smart Manufacturing Instructor Academy at TAMU
- Conducted 13 Instructor Workshops

DELIVERABLES

- Delivered Virtual Reality Software & Manuals
- Delivered Complete Instructor Academy Course Curricula and Documentation
- Delivered Playbook for Community Model Development
- Established Industry 4.0 Smart Factory Training Laboratory

REUSABLE OUTCOMES / SM MARKETPLACE

- Virtual Reality Software and Documentation
- Online Smart Manufacturing Short Course Curricula
- Smart Manufacturing Online Assessments
- Smart Manufacturing Community Model Playbook

RESULTS

12 Courses

Developed and piloted 12 Smart Manufacturing Industry Academy courses.

20+ Instructors Trained

Trained 20+ community college instructors on Smart Manufacturing course delivery.

PROJECT DETAIL
Budget Period: BP5
Submission Date: 07/24/2024
Sub-Award (contract) Number:
4550 G LA104
SOPO: 2354

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