Demonstration / Experimental platform #1 – SME Suitable Reconfigurable Collaborative Bimanual Robotic Assembly System, for experimental validation of the UbiCbot SME-suitable robotic technology in laboratory conditions, and

Demonstration / Experimental platform #2 – SME Suitable Collaborative Dual-arm Robotic Arc Welding System, for experimental validation of the UbiCbot SME-suitable robotic technology in laboratory conditions.

List of results:

1.1. Physical prototype of the Experimental platform #1 – SME Suitable Reconfigurable Collaborative Bimanual Robotic Assembly System – **UbiCbot RoboASSEMBLER**

1.2. Physical prototype of the Experimental platform #2 – SME Suitable Reconfigurable Collaborative Dual-arm Robotic Arc Welding System – **UbiCbot RoboWELDER**

1.3 Physical prototype of the industry compatible dexterous hand for bimanual assembly

NOTE: Both names: **UbiCbot RoboASSEMBLER** and **UbiCbot RoboWELDER** are trademarks of the CMSysLab and cannot be used without explicit permission of the CMSysLab!

Task 2

Task name: **UbiCbot Robotic Platforms Experimental Validation**

Task description (up to 500 characters with spaces):

This task will embrace a two group of activities: 1) Basic functional testing of the Experimental Platform #1 – UbiCbot RoboASSEMBLER and Experimental Platform #2 – UbiCbot RoboWELDER and 2) Detailed analysis and identification of technological performances, i.e., practical validation of the developed UbiCbot SME-suitable robotic technology in laboratory conditions, with possible extension of the UbiCbot RoboWELDER to real-world application scenario through its application in industrial SME environment.

List of results:

2.1. Report on identified performances of UbiCbot RoboASSEMBLER experimental platform

2.2. Report on identified performances of UbiCbot RoboWELDER experimental platform

2.3. General report on UbiCbot SME-suitable robotic technology validation in laboratory conditions and its technological readiness for further dissemination as a marketed product(s), i.e., UbiCbot SME-Suitable technology as a Serbian and Chinese commercial brand

Subproject title: **Dissemination**

Ordinal number of subproject: **5**

Month of beginning of subproject (in the interval from 1 to 36): **1**

Month of completion of subproject (in the interval from 1 to 36): **36**

List of researchers who participate in the project realisation:

1. Project coordinators + Steering Board (Serbia and China)
2. All researchers participated in R&D activities

Subproject description (up to 2000 characters with spaces):

The SP5 is dedicated to the dissemination activities of the project, i.e., UbiCbot SME-Suitable technology. That assumes industrial and public demonstration of the scientific and technological results of the project, knowledge transfer to the SMEs, organization of tutorials, workshops and practices for the professionals from industry. Specific dissemination activities are dedicated to establishing and make operative a joint Serbian-Chinese Center of Competence in robotics and cyber-physical manufacturing as logic consequence of previos phase of bilateral collaboration and signed Memorandum of Understanding between University of Belgrade (UBG) and Anhui University of Technology (AHUT). The CoC should extend its activities by integration other industrial companies that produce or use robots in their business.

Subproject objectives (up to 2000 characters with spaces):

The main objectives of the dissemination SP concern with spreading information about the results and new technology platform for SMEs based on collaborative robotics and strong inclusion of different cyber-physical systems and Internet of Things in manufacturing systems according to the new technology platform – Industry 4.0. The second, specific objective of dissemination regards to spreading information about activities of new CoC in collaborative robotics and cyber-physical systems with aim to benefit industry in Serbia and China.

Task 1

Task name: **General Dissemination**

Task description (up to 500 characters with spaces):

The task involves elaboration of a dissemination and exploitation plan that will provide complete information about the project objectives, baseline data, methodology applied and mechanisms of knowledge transfer from the research institutions to SMEs and generally to industry. The project scientific and technological results will be presented in international journals and robotic topics-related conferences with particular emphasis on the robotics communities worldwide, in public media, etc. A strategy for the presentation and demonstration of the project achievements will be drawn and implemented from the very first months of the project and be declared in the project plan established in SP1.

List of results:

1.1. Dissemination and exploitation plan written

1.2. Organization of joint workshop dedicated to the project topics with participation

of different stakeholders from research institutions, industry, governmental agencies and policy makers 1.3. Research papers (journal and conference) 1.4. Fair exhibitions in Serbia and China demonstrating technology innovations from the project
Task 2
Task name: **Specific Dissemination Activities** Task description (up to 500 characters with spaces): Establishing of the Joint Chinese-Serbian Center of Competences for Cyber-Physical Manufacturing Systems (CoC CPMS) that embraces Ubiquitous Collaborative Robotics, Manufacturing Mechatronics and Intelligent Factory Automation as three general building blocks for conducting long-term research and educational activities + robotics-related industry clusters and robotics-related networks of stakeholder research institutions for technology innovation (altogether a Business Interest Group - BIG). These activities are in line with the recently signed bilateral Memorandum of Understanding (MoU) for collaboration between the ANHUI University of Technology (AHUT) and University of Belgrade. The MoU was signed on December, 26th, 2016 at the Belgrade University by university high representatives - (Vice) presidents from Chinese and Serbian academic side. This document represents a policy fundament for our long-term scientific collaboration even after termination of this project. The CoC CPMS will be a network of research units, dispersed within the research institutions participating this project. The first unit of this network in Serbia will be established at the Faculty of Mechanical Engineering, CMSysLab, UBG, while the first unit of this network in China will be established at the School of Mechanical Engineering of AHUT. List of results: 2.1. Joint Chinese-Serbian Center of Competences for Cyber-Physical Manufacturing Systems (CoC CPMS) established by research partners and industry involved in this project 2.2. Strategy of acting for the next 5 years after project termination.

4.1.3. Provide a description and present a time plan (Gantt chart) of the realization of individual project parts (subprojects and tasks). (2000 characters, without taking into account the Gantt chart)

The project begins with the consortium meeting within the first two months. A Consortium Agreement will be developed, aligned and signed prior to the signature of the Grant Agreement. At the 1st meeting, within the SP1, partners establish the project plan, constitute steering board and plan for quality management.

System Analysis and Conceptualization will be conducted in SP2 starting from Month 1 and closing in Month 6. The results from these tasks will be used in SP3.