Adopted: June 5, 2007

ACADEMIC SENATE
of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, CA

AS-657-07

RESOLUTION ON PROPOSAL FOR ESTABLISHMENT OF THE CAL POLY CENTER FOR GLOBAL AUTOMATED IDENTIFICATION TECHNOLOGIES (POLY GAIT)

RESOLVED: That the Academic Senate of Cal Poly endorse the attached proposal for establishment of **The Cal Poly Center for Global Automated Identification Technologies (Poly GAIT).**

Proposed by: Industrial and Manufacturing Engineering Department
Date: April 23, 2007

The Cal Poly Center for Global Automated Identification Technologies (Poly GAIT)

Proposal to the California Polytechnic State University

Executive Summary for the Academic Senate Executive Committee

May 1, 2007

Tali Freed
Industrial and Manufacturing Engineering

Purpose
Background

Purpose:
We propose to grant Poly GAIT, the Cal Poly Laboratory for Global Automatic Identification Technologies, the status of a Cal Poly University Center. The Laboratory was founded in November 2004 by a group of faculty from several CP colleges interested in Radio Frequency Identification (RFID) and other methods of identifying and tracking objects. Such methods are used to prevent loss, theft, and counterfeiting; increase process efficiency; and provide traceability capabilities in cases of health-threatening disasters. Poly GAIT has been supported by the Dean of Research and Graduate Programs, Susan Opava, from its inception, as well as by Dean Wehner, Dean Noori, and Dean Christy. President Baker and interim provost Detweiler have also visited the lab and praised its energetic, multi-disciplinary, project-based learning and innovation.

Poly GAIT has been generously supported by industry, in cash and in-kind donations and project grants. A process developed in the lab has been submitted to the US Patent and Trademark Office for patenting, and several other innovative ideas are currently being developed into potentially patentable and commercially desirable products or processes.

Fifteen faculty from four Cal Poly colleges are actively working on Poly GAIT projects. There are also several hundred students from all Cal Poly colleges who have been trained in RFID courses, presentations, and projects.

Poly GAIT currently focuses on RFID research, however in the future we expect to expand into other areas, mixing process expertise and new technologies, such as biometric identification.

As a University Center the lab will have better structured administration, retain some of its grants overhead, and will be positioned to receive more funding from government and industry.

Background:
Radio Frequency Identification, or RFID, uses radio waves to automatically identify objects. This automatic identification method relies on storing and remotely retrieving data using devices called RFID tags, antennas, and readers. RFID tags are objects that can be attached or incorporated into a product, animal, or person. There are two types of RFID tags, passive and active. Passive tags have no internal power source, so tend to be smaller and cheaper. Active tags require a power source, however they tend to be more reliable and have a farther read distance and larger memories. The antenna enables the chip in the RFID tag to transmit the identification information to a reader. The reader then converts the radio waves reflected from the RFID tag into digital information that can be passed on to computers.

RFID technology is used in many everyday applications and the number and diversity of applications grows daily. For example, passports are being issued in many countries with RFID tags. Beginning in 2007, some new U.S. passports will include RFID technology. The RFID tags will store the same information that is printed on the passport as well as a digital picture of the owner. RFID tags are also used to track books in bookstores and libraries, pallets across supply chains, airline baggage, apparel and pharmaceutical items, as well as for door access control (e.g. CP Kennedy Library). Toll booths and bridges are using RFID for electronic toll collection (California's FasTrak). Many large corporations expect RFID to improve their supply chain management. Wal-Mart and the United States Department of Defense started mandating their vendors to place RFID tags on shipments. These mandates impact thousands of companies worldwide. With the use of RFID progressing, research and development organizations in this field are in high demand.

Poly GAIT has been working with the RFID community on innovative research and development, while providing Cal Poly students with an exciting, hands-on learning environment. Poly GAIT has taken part in many student-led projects. See Appendix A for a full list. Many of these projects incorporate the very problems businesses are encountering when trying to produce and implement RFID systems; while some projects show new ways RFID can help certain industries. For example, CAFES and OCOB students and faculty are currently working on an RFID system for tracking livestock so that diseases can be quickly traced and eliminated. CLA Graphic Communication students are collaborating with CENG Electrical Engineering students to develop printable electronics. Some of the other areas of research being conducted at Poly GAIT are Warehouse Inventory Tracking, Asset Tracking, Door Access Control, Produce Traceability, Antenna Design, Automated Grocery Store Checkout, and Personalized Environment Control. RFID has many possibilities for the future and Poly GAIT hopes to be an integral part in the success of RFID technology and future Cal Poly graduates.

Poly GAIT efforts will focus on three primary activities:

- Education and Training
- Innovative Research and Development
- Solving Industrial Problems

The Poly GAIT laboratory at Cal Poly focuses on groundbreaking research and development that leads to innovative real-world solutions. Poly GAIT is dedicated to providing the best education and training to students and industrial partners, and fostering collaboration among industry, government, and academia for the advancement of automatic identification technologies.

Few organizations have the resources and expertise to develop solutions exploiting the new opportunities and challenges of RFID technologies. An academic institution highly regarded in all aspects of engineering, business and agriculture is the perfect environment to develop prototype and demonstration systems. Cal Poly, with its strong polytechnic tradition of applied learning and problem solving, is ideally suited to undertake the various applied research challenges, multi-disciplinary investigations, solution development, testing, training, and implementation projects presented by the emerging RFID industry.

In addition to providing education and training, performing innovative research and development, and solving industrial problems, the Center plans to accomplish the following objectives:

- Partner with industry practitioners to develop innovative initiatives
- Enhance the interdisciplinary curriculum and supplement academic learning
- Augment faculty professional development and applied research opportunities
- Generate opportunities for faculty salary supplementation (fees for teaching Center courses, patent royalties, consulting)
- Improve graduating students employment opportunities and entrepreneurial initiatives
- Provide classes and projects to students from various disciplines interested in identification and tracking technologies
- Establish external funding for the Center's on-going activities
- Develop opportunities for student engagement in applied research
- Partner with and strengthen relationships among the different colleges and departments of Cal Poly
- Develop on-going relationships with other education institutions, research institutions and foundations

State of California
Memorandum

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ACADEMIC SENATE

CAL POLY

SAN LUIS OBISPO
CA 93407

To: Bruno Giberti
Chair, Academic Senate

Date: August 8, 2007

From: Warren J. Baker
President

Copies: W. Durgin
M. Noori
D. Wehner
D. Christy
T. Freed
S.Opava

Subject: Response to Academic Senate Resolution AS-657-07
Resolution on Proposal for Establishment of the Cal Poly Center for Global Automated Identification Technologies (Poly GAIT)

Based upon the positive endorsement by the Academic Deans' Council at its April 2, 2007, meeting, as well as the recommendation of Provost William Durgin, I am pleased to approve Academic Senate Resolution AS-657-07 and authorize the establishment of the Cal Poly Center for Global Automated Identification Technologies (Poly GAIT).

Thank you.