



MEMO

Academic Alliance Meeting, December 10, 2001

FROM: Brooke Peterson

TO: Academic Alliance Members

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MEETING MINUTES

The first meeting of the Academic Alliance for Auto Identification Technology was held at the University Park Hotel in Cambridge Massachusetts, USA, on December 10, 2001.

Kevin Ashton, Executive Director of the Auto-ID Center, convened the first meeting of the Academic Alliance by welcoming attendees. Mr. Ashton gave a brief overview of the Center, explaining its origins and purpose. Along with the Auto-ID Centers at MIT and the University of Cambridge, Ashton announced the creation of two new labs, one at the University of Adelaide, Australia and the second at a University to be determined in Japan. The Auto-ID Center now represents 43 companies, with an almost even split between End-Users and technology Vendors. Ashton stated that collaborating with academia will lead to beneficial work all over the world in automatic identification. Academia, he said, is the ultimate place for imaginative thinking to help solve the problem at hand.

Following Ashton's introduction, **Professor Sanjay Sarma, Research Director, Auto-ID Center North American**, gave the introduced the agenda for the meeting and introduced Auto-ID Center personnel. Sarma said the purpose of the meeting is to put together an alliance and bring together other fields. He also stated the Center seeks any journals, groups, or organizations that would be beneficial to the field of automatic identification. Sarma expressed his hope that the alliance would help shape and define the field.

Professor Sarma explained that RFID technology is not new, but what is new is attempting to make RFID costs come down to below 5 cents a tag. Noting that there is more scholarship needed on RFID, he stressed the importance of an academic alliance. The success of the Auto-ID Center depends on academic collaboration; on bringing people together to achieve the goal.

Professor Peter Cole, Research Director, Auto-ID Centre Australia, presented a background of Radio Frequency technology. He outlined RFID, citing the wide range of physical properties involved in the technology and noting the many common themes present throughout it. Professor Cole followed with a technical history and overview of RFID. The strongest barrier to RFID today, Professor Cole said, is manufacturing cost. He stated that great progress can be made with imagination and

small amounts of knowledge and concluded by briefly discussing future developments RFID would make possible, naming automatic debiting and theft reduction as examples. To view the presentation go to: <http://www.eleceng.adelaide.edu.au/Personal/peter/peter/primer.html>.

Professor Duncan McFarlane, Research Director, Auto-ID Centre Europe, introduced the Auto-ID Center Research presentation, briefly outlining the efforts of each of the two Centers. Professor McFarlane added that the purpose of sharing research is to help capture and inspire ideas on automatic identification.

Professor Sanjay Sarma gave the MIT Auto-ID Center Research update representing the work of Professor Sarma, Dr. David Brock, and Dan Engels. Professor Sarma opened with a brief explanation of the goal of the center: making RFID tags ubiquitous by taking most of the functionality out of the tags and transferring it to readers, software systems, and networks. By putting only an ID number on the tag and storing the rest of the data elsewhere automatic identification can be made possible.

Professor Sarma explained that the most important advantage of RF tags is that they are non-line of sight and can be read without humans. The mission of the Center is low cost RFID tags that the Center believes can be developed by taking the functionality out of the tag and relying on complicated software to store this information elsewhere and make it easily accessible. Sarma believes this is a better way of tag manufacturing, allowing faster access and nearly unlimited memory. The cost of RFID tags today is 75-80 cents. Sarma stated the need to get to or below 5 cents per tag to make automatic identification efficient. Tag development costs, he said, are high unless the quantity manufactured is in billions. Encouragingly, though, five billion bar codes are scanned each day throughout the world. Designing the network, software, and tags together is the only way 5 cents can be achieved.

Professor Duncan McFarlane reported on the research activities in the Auto-ID Center at the University of Cambridge. Professor McFarlane stated that the focus of the research program at Cambridge is on the control challenges presented by automatic identification. Current work consists of a program called Distributed Intelligent Control that is currently in the information oriented phase of gathering information off of products and transferring that information onto a network. The European Centre's concern is with the accuracy, availability, and efficiency of manufacturing and supply-chain applications. Professor McFarlane concluded by stating that the idea of carrying product information with a product is the ultimate goal of product control.

Participant introductions followed with each attendee stating his/her name, organization, field, and specific interest in automatic identification.

Attended

Mr. Lauri Sydanheimo, Tampere University of Technology

Professor Yves Dallery, Ecole Centrale Paris Centrale

Evren Sahin, Ecole Centrale Paris Centrale

Eddy Bajic, CRAN University of Nancy

Dr Chaxel Frederi, CRAN University of Nancy

Christian Floerkemeier, University St. Gallen

Adrian Beck, Leister

Matt Ward, University of London

Mike Waller, University of London

Steve Smith, Berkeley

Roger Stewart, Berkley

Nat Sims, CIMIT, Harvard Medical School

Ellen Kinnealey, CIMIT, Massachusetts General Hospital

Stan Gershwin, Laboratory for Manufacturing and Productivity, MIT

Edmund W. Schuster, Affiliates Program in Logistics, MIT

Jonathan Byrnes, Logistics Engineering Systems, MIT

Rich Fletcher, Media Lab, MIT

James B Rice, Center for Transportation Studies, MIT

Reuben Mezrich, CIMIT, MIT

Larry Rudolph, Lab for Computer Science (LCS), MIT,

Robert H. Clarke, Michigan State University

Steve Schwaitzberg, New England Medical Center

Dean Grier, North Dakota State University

David Porter, Oregon State University

Valerie Thomas, Princeton University

Ming-En Wang, University of Pennsylvania

Tony Woo, University of Washington

Attending, Auto-ID Center

Kevin Ashton, Executive Director, Auto-ID Center, kashton@mit.edu

Sanjay Sarma, Research Director, Auto-ID Center North America, sesarma@mit.edu

Duncan McFarlane, Research Director Auto-ID Centre Europe, dcm@eng.cam.ac.uk

Professor Peter H. Cole, The University of Adelaide, Australia, cole@eleceng.adelaide.edu.au

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Steve Hodges, Senior Industrial Fellow, Cambridge, seh@eng.cam.ac.uk

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