ID & ASSOCIATES PTY LTD

STATEMENT OF CAPABILITY

INTRODUCTION

In recent years, through the application of computer-based technologies, there has been an increasing ability to manipulate extremely difficult and complex industrial problems. ID & Associates has been able to develop some of the technologies arising from the research and development work of the Department of Electrical Engineering of the University of Newcastle interfaced with available commercial systems and software into marketable products and services.

ID & Associates has taken over TIED a division of **TUNRA** (The University of Newcastle Research Associates). **ID & Associates Pty Ltd** was established in 2000. The ownership and the capabilities of TIED were passed onto ID & Associates Pty Ltd with the same staff and contracted employees to complete the work.

1. ID & ASSOCIATES PTY LTD EXPERTISE

ID & Associates Pty Ltd has particular expertise in satellite antenna tracking and control, control systems and other technologies including computers, software development, hardware specification and SCADA[a]. This expertise allowed TIED (now ID&Associates Pty Ltd) to obtain contracts with AWADI (now BAE Systems) -BHE for the Department of Defence, TELSTRA (formerly OTC[c]), Optus, INDOSAT (in Indonesia), Goninan, Auspace / Matra Marconi Space, Citra Sari Makmur (in Indonesia), Clough Engineering, Comsyst, NDC, TVNZ and TSKL (Kirabati). These opportunities have involved ID & ASSOCIATES PTY LTD in time-critical, quality-assured project management and have included design, build, testing, installation, commissioning, consultation, training and support.

ID & Associates Pty Ltd has built up a reputation in the areas of technology and project management with various organisations. Including TELSTRA, OPTUS, CSIRO Division of Radiophysics, Department of Defence, AWADI (now British Aerospace - Australia), -BHE, Connell Wagner Pty. Ltd., Codan, Auspace-Matra Marconi Space (now Bae Systems), Dartbrook Coal (Shell Coal) A. Goninan & Co., Clough Engineering, Comsyt and Austar.

2. ACHIEVEMENTS

Satellite Antenna Tracking and Control

Professor Rob Evans and Professor R. H. Middleton developed a satellite antenna control algorithm for geostationary satellites which are allowed to go into inclined orbits to increase their operating lives. To satisfy a need for more frequent movements of the antenna tracking dish, and to maximise the life of mechanical components, it is important to move the dish as efficiently as possible while still guaranteeing good tracking performance.

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[a] Supervisory Control and Data Acquisition.

[c] Overseas Telecommunications Commission.

Simulation studies of the algorithm tracking the inclined orbit of the 177DEG.E. INTELSAT IV-A (F3) satellite were carried out and confirmed by on-line experiments on an 8 metre dish at the TELSTRA facility at Oxford Falls, Sydney, NSW, Australia.

ORBTRACK

This work led to the development of the ORBTRACK Antenna Tracking Controller. ORBTRACK was developed to provide accurate tracking with minimal antenna movement using several operator-selectable modes, thus reducing mechanical wear and power consumption.

ORBTRACK features include an ability to:

- be operated at unattended sites;
- "learn" any orbit without initial information;
- maintain tracking for up to five days if the beacon signal has been lost.

Over 40 ORBTRACK units were sold to TELSTRA and were installed in Perth, Nauru, the Cocos Islands, Vietnam, Russia and the Antarctic.

Geraldton Project

TIED was contracted to AWADI –BHE) for the Defence Department The tracking system required to 1/1000th of a degree, to point at satellites and stars without any tracking history, and to return to an anticipated position after being diverted to other tasks.
The system is user-friendly and easily operated. The project complied with Australian quality standard AS2990 Cat. A. Responsibilities included design, software writing, prototype build, prototype test, production build, acceptance testing, version qualification testing, installation, commissioning, documentation, training and product support. Mr I. Dick was the Project Manager.

This project utilised the previous work lessons learnt in controlling large resonant structures on the Australia Telescope antennae. Satellite antenna tracking and control, and the experience gained with ORBTRACK, although utilising different software and hardware. The antenna tracking software had to be re-designed by Middleton for use with large DC drives instead of simple "bang-bang" control and has increased tracking accuracy to ORBTRACK.

The system requires a real-time operating system and utilises UNOS[i], which was developed using PL/M language by Betz and translated into C language for ease of adaptability to other modules and platforms.

As there was a requirement for a good operator interface, two off-the-shelf PCs were used for the primary and secondary monitoring and control functions. The screens and the operator control software were designed using commercially available software.

[i] The University of Newcastle Operating System.

A Programmable Logic Controller (PLC) was used to provide the interface between the antenna equipment and non-servo monitoring and control equipment

The antenna installation and commissioning was completed on time and the pointing accuracy of the antennae is within the specification requirement. The training was completed in March 1993 and the final acceptance took place in June 1993.

TRACKSAT Project

In December 1991, the quality-assured (to Australian standard AS3901) development of a prototype antenna tracking and control system was developed for six solar-powered antennae in the Cook Islands. The solution was based on the experiences gained from the ORBTRACK and Geraldton Projects.

The project required off-the-shelf multi-sourced industrial PC-based antenna tracking and control units, as opposed to the purpose-built ORBTRACK solution. Performances better than ORBTRACK have been achieved, without the need for a front panel control or VT100 Control. TRACKSAT interfacing specifications are identical to those for ORBTRACK, and can be adapted to other installations as required.

The contract required specification of the hardware requirements and re-Configured the software from PL/M to C language. Middleton was the Project Technical Director; Betz, Moylan and Mr. A. Bastiani from CICS were responsible for the project design and testing work; David Brown carried out other work and Ian Dick was the Project Manager.

The design and prototype testing was completed and the final version was handed over to TELSTRA for integration, testing, installation and commissioning.

The final version of TRACKSAT is a much-improved system to ORBTRACK; several enhancements have been included to improve the operation and performance of the tracking system.

The TRACKSAT project work included tracking system development, software design, hardware specification, prototype integration, and testing and subsequent modifications.

With further development to include a control and monitoring, the TRACKSAT is now marketed by ID & ASSOCIATES PTY LTD as the TS2000 Tracking System.

Solar Outage Software

ID & ASSOCIATES PTY LTD developed software for a VSAT[j] operator to predict when there were outages of communications caused by the sun. ID & ASSOCIATES PTY LTD now markets this product as **'SOLAR OUT'**.

Industrial Applications

Capabilities and expertise have been also applied into other Technologies and have included the design and install of a control system using the CITECT package for a oily-water processing plant at BHP Wollongong for Jetflote and provided a similar system to Jetflote for Bonlac Foods at Cobden, Victoria. This system required the control and monitoring of motors, pumps, valves, pH, level, Jameson cell (flotation technology) and other devices.

[j] Very Small Aperture Terminal.

The application for this system was completely different to satellite tracking, however ID & ASSOCIATES PTY LTD is able to adapt, apply and understand all technical requirements of its customers.

Other Projects
In December 1993, awarded a contract with Indosat for the upgrade of a 24m antenna (JAH-1A) and also a contract to supply a tracking and control system to AWADI-BHE for the Department of Defence using the TS3000 system.

Supplied several TS2000 systems to Telstra, Optus and A Goninan. The TS2000 system has been installed in Sydney, Melbourne, Perth, Brisbane, Adelaide, Kazakhstan, Georgia, Malta and Rwanda.

In 1997, contract awarded to supply several TS2000 systems for Telstra.

In 1994, sub-contract by Auspace/Matra Marconi Space for the supply of two TS3000 and interfacing systems for the relocation of two antennas for the Department of Defence.

Contracted by Optus to convert non-tracking antennae to a full tracking system, included polariser tracking for OPTUS in Adelaide. Also the supply of a remote monitoring system to Optus to monitor several Antenna Tracking and Control Systems in Melbourne, Brisbane, Perth, Adelaide and Papua New Guinea from Sydney.

In 1996, contracted awarded a contract to provide an auxiliary drive system and local monitoring system for JAH-1A, INDOSAT in Indonesia.

Contracted to assist Dartbrook Coal (Shell Coal) by providing consulting services for the writing of programming procedures, software writing and problem solving and commissioning.

Contracted by the Department of Defence for the upgrade of the TS3000 monitoring system using Visual C++ running on Windows NT. The TS3000 is now called the TS3010.

In 1997, contracted for Project Neptune for supply, installation and commissioning for several TS3010 for the Department of Defence subcontracting to Clough Engineering and have provide spares to support the system.

Supply of several TS2000 units to Telstra, NDC and TSKL (Kiribati).

3. THE FUTURE

ID & ASSOCIATES PTY LTD plans to support its existing commitments in the areas of satellite antenna tracking, control and monitoring systems, and to build upon these commitments by sourcing new business opportunities both in Australia and overseas.

ID & ASSOCIATES PTY LTD plans to find new opportunities in its own right, as well as through collaboration with others.

Research & Development

ID & ASSOCIATES PTY LTD is part of the global telecommunications industry and, in conjunction with the Department of Electrical and Computer Engineering and other Department of the University of Newcastle, will continue in its efforts to be at the forefront of antenna tracking and control and control technology. Where appropriate, ID & ASSOCIATES PTY LTD will evaluate other market areas, which are synergistic with its core expertise and will link its R & D activities to current and future market requirements.

Product Support

ID & ASSOCIATES PTY LTD will continue to support supplied products and systems during warranty and latent defect periods. ID & ASSOCIATES PTY LTD supports products under contract after the warranty period. There is a requirement to ensure maintenance and configuration management of the software and any additional enhancements or modifications required by our customers. ID & ASSOCIATES PTY LTD provides warranty and on-going support for all its products.

Training

ID & ASSOCIATES PTY LTD will carry out training for operators and maintenance personnel for all Projects. ID & ASSOCIATES PTY LTD can provide training for all systems supplied as required by the customer

Marketing

ID & ASSOCIATES PTY LTD will continue to market its products which include the TS2000, TS3000 and the 'Solar Out' software and its services of development, design, manufacture, testing, installation, commissioning, training, support and consultation for its systems and expertise. ID & ASSOCIATES PTY LTD is currently supplying systems and related consulting services to both Australian domestic markets as well as the global market. ID & ASSOCIATES PTY LTD is also marketing its control and monitoring capabilities for all applications.

Quality Accreditation

All projects have been undertaken under an audited, quality-assured regime. ID & ASSOCIATES PTY LTD using AS/NZS ISO 9001.

Products/Services

ID & ASSOCIATES PTY LTD’s products and services include:

? Control Systems.

? Monitoring Systems.

? SCADA Systems.

? Computer Systems.

? Research/Development - Control Systems.

? TS2000/TS3010 Satellite Tracking and Control.

? Real Time Operating Systems.

? Waste Water Treatment - Monitoring and Control.

? Design, Software, Development, Programming, Manufacture, Supply, Installation, Commissioning, Training, Consulting and Support for Control and Monitoring Systems.

Key Features

ID & ASSOCIATES PTY LTD has professional experienced Engineers supported by academics from the University of Newcastle which provides the customer with a supplier which is innovative and practical. ID & ASSOCIATES PTY LTD has experience in software for industrial applications including C++, Borland C, Visual C++, CITECT, Factory Link, Pascal, PLC, UNOS (University of Newcastle Operating Systems), DOS, Windows (3.1, 98, NT), Fortran and Assembly. ID & ASSOCIATES PTY LTD has experience in different hardware (PC, PLC) electrical (motors, drives), electronics (manufacture and design of systems for a variety of applications) with experience in a variety of design tools - Protel, Autocad, MATLAB, PLC programming. All projects are managed utilising up-to-date project management (eg Microsoft Projects) and accounting sytems (MYOB). ID & ASSOCIATES PTY LTD has experience with systems for a variety of applications -telecommunications, mining, industrial, commercial, defence, environmental and adaptable for specific requirements.

KEY PERSONNEL

ID & ASSOCIATES PTY LTD

Managing Director

Mr. Ian G. M. Dick

Mr Dick graduated with a BE also holds an Associate Diploma in Business Administration and a Certificate of Engineering in Electrical Engineering. He is presently the Manager of ID & ASSOCIATES PTY LTD, and was the Project Manager for the Geraldton, TRACKSAT, SETAS, Eggnog, Optus-Adelaide, JAH-1A, Neptune Projects and supply of several tracking systems to TELSTRA, Optus, NDC and Goninans. He has also carried out extensive marketing for ID & ASSOCIATES PTY LTD, nationally and internationally. He was previously the Electrical Workshop Supervisor with RAELEC Engineering Pty Ltd (Ampcontrol) Newcastle, NSW, a high voltage sub-station manufacturer for mining companies, electrical authorities and transport organisations. Prior to this position, he was an Electrical Engineer in the RAAF[l] the and held positions of:

Officer-in-charge of F111 technical spares assessing, provisioning and procuring at Logistics Command. Officer-in-charge of Electrical Section, which carried out the maintenance, repair and overhaul of F111, Mirage and Chinook electrical equipment, and Base Calibration Centre, which calibrated measuring devices using precision instruments, at No 3 Aircraft Depot. Engineering Officer with the Engineering Section with responsibilities of technical investigations and problem solving at No 3 Aircraft Depot.

Before completing his BE and becoming a commissioned officer, Mr Dick was an instrument fitter with the RAAF and carried out maintenance on various aircraft and aircraft equipment including F111, Mirage and Iroquios. He is a Member of the IEAust and the Queensland University of Technology Foundation.

Technical Officer

Mr Adam J. Anderson

Mr Anderson has completed studies in Electronics & Communication Systems. He holds the position of Technical Officer with ID & ASSOCIATES PTY LTD and the responsibilities of this position cover: Configuration and Testing of Satellite tracking systems; Assembly of industrial computer equipment; Component level construction of custom peripherals; Documentation and publishing of manuals; Stock control; Component and Information sourcing.

Mr. Anderson's 5 years of experience in the security industry installing and commissioning Security Systems, involving Proximity Card access control, and most common systems including medical. He also is involved with the design and

[l] Royal Australian Air Force.

development of music software using simple Digital Signal Processing on PCM data. He has experience with: the setup and upgrade of Desktop/Industrial PC's, networks, Corel Draw, Word 6, Excel, Microsoft Access and configuration of TCP/IP clients. His programming experience is primarily in Turbo Pascal 6, VB, VBA, HTML, SQL, Assembly Language and moving towards C++.

Administrative Assistant

Ms Julie Alterator
Ms Julie Alterator is involved in administration, accounting (using MYOB), and office support. Ms Julie Alterator assists in the submission of tenders and assists in the administration of projects, including large defence projects. Ms Julie Alterator maintains records and files and maintains documentation control systems in accordance with the Quality Manual and Standard Procedures. Ms Julie Alterator assists in the production of project technical and administrative documentation using word processing, database, spreadsheet and other software and assists in purchasing, stock control and invoicing and assists in project management.

Consultants

Technical Director

Professor Richard H. Middleton

Professor Middleton graduated with a SBC. in Physics and Mathematics, BE in Electrical Engineering with First Class Honours and Ph.D. in Electrical Engineering. He has several awards including the TG Room Memorial prize in Mathematics for first in New South Wales for the HSC[m] in 1978, the IEAust award for highest pass in Engineering in 1984 and the 1991 Australian Telecommunications and Electronics Research Board Outstanding Young Investigator, a national award. Associate Director of Centre of Integrated Dynamics and Control (CIDAC) at the University of Newcastle, His responsibilities have included the development of systems algorithms, hardware and software.

He has undertaken research and has an interest in Robust Control Systems, Adaptive Control, Microprocessor Control, Analog Control, Power Electronics, Linear Electronics, Computer Simulation of Control Systems, Robotics and Satellite Tracking.

Professor Middleton has written several papers and co-authored a book, 'Digital Control and Estimation: A Unified Approach' Prentice Hall, 1990 with Professor Graham Goodwin from the University of Newcastle. He has been a member of IEEE since 1986.

[m] Higher School Certificate.

Senior Engineer

Mr. David J. L. Brown

Mr Brown graduated with a BE (Electrical Engineering) and is a Graduate of the Australian Joint Services Staff College. He is the Senior Engineer with ID & ASSOCIATES PTY LTD and his responsibilities include technical co-ordination, software design/production and system testing. He was the Project Engineer for Project Geraldton, SETAS and Eggnog projects. Prior to joining ID & ASSOCIATES PTY LTD, he was Assistant Director, Naval Weapons Design (Electronic Warfare) for the Department of Defence - Navy in Canberra, Australia; other positions included Technical Liaison Officer - United Kingdom, Senior Engineer - Naval Weapons, Exchange Engineer - US Dept. of Defence, Design Engineer and Quality Control Engineer.

Mr Brown has designed and developed an artillery shell velocity indicator, ultra-sonic computer-based record/playback system, printer graphic software applications and microwave detection and analysis systems. He has experience in digital and analog electronic equipment design, programming in several languages and engineering systems analysis.

Senior Systems Engineer

Mr. Brian D. Stephen

Mr Stephen graduated with a B.Sc.[n] (Electrical Engineering) from the University of Alberta, Canada. He holds the position of Senior Systems Engineer with ID & ASSOCIATES PTY LTD and his responsibilities include: the design and implementation of hardware and software to meet specification requirements, and the testing, commissioning and documentation of all aspects of developed systems. He has worked on several projects including Geraldton, SETAS, Eggnog, JAH-1A upgrade, Optus - Adelaide upgrade and Jetflote - Worth Oil Project including tracking system design, design, installation and commissioning of various control and monitoring systems, using several packages including CITECT. He has also carried out work with Dartbrook Coal for the writing of software procedures, design, programming, problem solving and commissioning.

Prior to joining ID & ASSOCIATES PTY LTD, he was employed by GSR Technologies, a company which designs and manufactures computer-controlled CO_2 laser cutting systems in Edmonton, Canada.

Mr Stephen started as a design engineer, where his responsibilities included writing programs for robotic control, design and development of laser and motion control systems, design and development of automated auxiliary equipment. He progressed to Project Manager, where he was responsible for the overall development and production of all aspects (electrical, mechanical and software) of cutting systems.

[n] Bachelor of Science.

Dr. Robert E. Betz

Dr. Betz graduated with a BE with First Class Honours, ME and a Ph.D. in Electrical Engineering. He is presently a senior lecturer at the Electrical and Computer Engineering Department of the University of Newcastle. His research work includes the control of inverter-fed AC machines, on the characterisation of the performance of synchronous reluctance machines, and real-time operating systems, including the development of UNOS (used in the TS2000 and TS3000 systems), with an interest in scheduling approaches to meet real-time constraints. He has also been involved with several projects including the Australian Telescope, TRACKSAT (TS2000) Project, a pipeline crack investigation vehicle, Mine Vehicle Dispatch Project, a small telephone traffic recording instrument, a bank security system and an electrical energy operating system. He has also been the acting-technical director for ID & ASSOCIATES PTY LTD and the Technical Director for the upgrade of the TS3000 Monitoring System..

Associate Professor Peter J. Moylan

Professor Moylan graduated with a BE, ME and PhD in Electrical Engineering. He joined the academic staff in 1972 where he is now an Associate Professor. He has been a visiting researcher with the University of California, Berkeley; Concordia University, Montreal and Centre National d'Etudes des Telecommunications, Paris. The bulk of his published research has been in the areas of general systems theory, optimal control, stability and interconnected systems. In recent years, he has concentrated more on systems software with a particular emphasis on real-time software and on routing and network management problems in telecommunications systems.

Professor Moylan is the author of "Assembly Language for Engineers" (Ellis Horwood 1987), and is currently working on books on real-time software and on dissipative systems. He has also carried out software module development, design and testing for the Geraldton and the TRACKSAT Projects.

Mr. Adrian Bastiani

Mr Bastiani graduated with a BE in Computer Engineering with First Class Honours. He is presently employed by CICS as a research engineer and has been involved in ORBTRACK software maintenance and upgrading. He designed and developed ORBSIM, which simulates a satellite earth station system for testing ORBTRACK and TRACKSAT. He has also carried out work with TRACKSAT software module design, integration and testing.