

## Tecnologie Hardware Per I Sistemi Dedicati

Gli studi raccolti in questo volume costituiscono il primo ‘Quaderno’ della nuova Collana di pubblicazioni della Scuola di Scienze Umane e Sociali dell’Ateneo fridericiano, promossa con l’intendimento di facilitare il confronto e il dialogo tra studiosi di varia provenienza, di sollecitare indagini trasversali e interdisciplinari sia su argomenti lontani nel tempo sia su temi di grande attualità che sono parte del nostro vissuto quotidiano. Il volume rappresenta una felice sintesi tra passato e presente, come è prerogativa delle ricerche appartenenti alla cultura umanistica, che ha a oggetto lo studio dell’esperienza umana considerata nella sua globalità.

Con l’evoluzione delle telecomunicazioni, si registra un mutamento nel panorama dei processi culturali e comunicativi, con esiti per il sistema educativo e per i modelli pedagogici e didattici che ne regolano la relazione. È importante conoscere e sperimentare i nuovi ambienti offerti dalla radicale trasformazione apportata dai new media per comprenderne le ricadute all’interno dei sistemi sociali ed educativi. Il ragionamento proposto si sviluppa in quello spazio che accomuna gli sviluppi delle scienze della comunicazione, della pedagogia e della sociologia, interpellate da queste trasformazioni

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Testo rivoluzionario, non perch? contiene idee rivoluzionarie bens? perch?, finalmente, contiene (quasi) tutto quello che serve per insegnare. Da cosa fare il primo giorno di scuola, a come realizzare lezioni coinvolgenti, effettuare le valutazioni, aumentare la creativit? degli allievi, operare con classi difficili e creare buoni canali comunicativi. Senza avere la pretesa di dire all?insegnante cosa fare in ogni situazione, lo mette in condizione di operare le scelte che ritiene migliori sulla base di evidenze scientificamente fondate su cosa funziona meglio.

Atti della Fondazione Giorgio RonchiLucia RonchiLe tecnologie dell’informazione come leva di sviluppo strategicoGuida EditoriL’innovazione nei processi amministrativi delle pmi. Opportunità e vincoli della fatturazione elettronicaOpportunità e vincoli della fatturazione elettronicaFrancoAngeli

Il Rapporto L’azione delle politiche a seguito di disastri naturali: aiutare le regioni a sviluppare resilienza rappresenta il primo studio dell’OCSE sulle strategie multi-settoriali nelle regioni post disastro e fornisce raccomandazioni concrete.

Da una recensione del TG1 RAI: «Internet è una realtà in continua evoluzione, logico quindi che il più famoso manuale della rete, edito da Laterza, sia giunto felicemente alla quarta edizione con l’arrivo del 2000. Gli autori sono, come sempre, Marco Calvo, Fabio Ciotti, Gino Roncaglia e Marco Zela. Come per le precedenti edizioni, il testo del manuale è disponibile gratis e in forma integrale sul sito internet della casa editrice Laterza. Ma con Internet 2000 per la prima volta viene anche allegato al libro un CDROM, arricchito da filmati e animazioni che aiutano a capire meglio programmi e procedure. Un libro su tre supporti dunque: carta stampata, CDROM e sito Internet. Una scelta coraggiosa perché sfida i soliti luoghi comuni sulla rivalità tra le reti e la stampa, e anche molto gradita dai lettori che possono così approfondire la propria conoscenza della rete nei tempi e nei modi che più preferiscono».

Questa settima edizione delle Malattie del cuore di Braunwald, punto di riferimento della moderna cardiologia, si presenta in una

veste contenutistica e grafica completamente rinnovata e ampliata. Ai 51 capitoli già esistenti, che sono stati radicalmente rivisti e aggiornati, ne sono stati aggiunti 35, scritti da 57 nuovi autori, con argomenti che spaziano dal processo decisionale in cardiologia alle manifestazioni vascolari dei disturbi autonomici,

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This book details Solar-Tracking, Automatic Sun-Tracking-Systems and Solar-Trackers. Book and literature review is ideal for sun and moon tracking in solar applications for sun-rich countries such as the USA, Spain, Portugal, Mediterranean, Italy, Greece, Mexico, Portugal, China, India, Brazil, Chili, Argentina, South America, UAE, Saudi Arabia, Middle East, Iran, Iraq, etc. A solar tracker is a device that orients a payload toward the sun. Like a satellite tracker or moon tracker, it tracks the celestial object in the sky on its orbital path of apparent movement. A programmable computer based solar tracking device includes principles of solar tracking, solar tracking systems, as well as microcontroller, microprocessor and/or PC based solar tracking control to orientate solar reflectors, solar lenses, photovoltaic panels or other optical configurations towards the sun. Motorized space frames and kinematic systems ensure motion dynamics and employ drive technology and gearing principles to steer optical configurations such as mangin, parabolic, conic, or cassegrain solar energy collectors to face the sun and follow the sun movement contour continuously. In harnessing power from the sun through a solar tracker or practical solar tracking system, renewable energy control automation systems require automatic solar tracking software and solar position algorithms to accomplish dynamic motion control with control automation architecture, circuit boards and hardware. On-axis sun tracking system such as the altitude-azimuth dual axis or multi-axis solar tracker systems use a sun tracking algorithm or ray tracing sensors or software to ensure the sun's passage through the sky is traced with high precision in automated solar tracker applications, right through summer solstice, solar equinox and winter solstice. From sun tracing software perspective, the sonnet Tracing The Sun has a literal meaning. Within the context of sun track and trace, this book explains that the sun's daily path across the sky is directed by relatively simple principles, and if grasped/understood, then it is relatively easy to trace the sun with sun following software. Sun position computer software for tracing the sun are available as open source code, sources that is listed in this book. Ironically there was even a system called sun chaser, said to have been a solar positioner system known for chasing the sun throughout the day. Using solar equations in an electronic circuit for solar tracking is quite simple, even if you are a novice, but mathematical solar equations are over complicated by academic experts and professors in text-books, journal articles and internet websites. In terms of solar hobbies, scholars, students and Hobbyist's looking at solar tracking electronics or PC programs for solar tracking are usually overcome by the sheer

volume of scientific material and internet resources, which leaves many developers in frustration when search for simple experimental solar tracking source-code for their on-axis sun-tracking systems. This booklet will simplify the search for the mystical sun tracking formulas for your sun tracker innovation and help you develop your own autonomous solar tracking controller. By directing the solar collector directly into the sun, a solar harvesting means or device can harness sunlight or thermal heat. This is achieved with the help of sun angle formulas, solar angle formulas or solar tracking procedures for the calculation of sun's position in the sky. Automatic sun tracking system software includes algorithms for solar altitude azimuth angle calculations required in following the sun across the sky. In using the longitude, latitude GPS coordinates of the solar tracker location, these sun tracking software tools supports precision solar tracking by determining the solar altitude-azimuth coordinates for the sun trajectory in altitude-azimuth tracking at the tracker location, using certain sun angle formulas in sun vector calculations. Instead of follow the sun software, a sun tracking sensor such as a sun sensor or webcam or video camera with vision based sun following image processing software can also be used to determine the position of the sun optically. Such optical feedback devices are often used in solar panel tracking systems and dish tracking systems. Dynamic sun tracing is also used in solar surveying, DNI analyser and sun surveying systems that build solar infographics maps with solar radiance, irradiance and DNI models for GIS (geographical information system). In this way geospatial methods on solar/environment interaction makes use of geospatial technologies (GIS, Remote Sensing, and Cartography). Climatic data and weather station or weather center data, as well as queries from sky servers and solar resource database systems (i.e. on DB2, Sybase, Oracle, SQL, MySQL) may also be associated with solar GIS maps. In such solar resource modelling systems, a pyranometer or solarimeter is normally used in addition to measure direct and indirect, scattered, dispersed, reflective radiation for a particular geographical location. Sunlight analysis is important in flash photography where photographic lighting are important for photographers. GIS systems are used by architects who add sun shadow applets to study architectural shading or sun shadow analysis, solar flux calculations, optical modelling or to perform weather modelling. Such systems often employ a computer operated telescope type mechanism with ray tracing program software as a solar navigator or sun tracer that determines the solar position and intensity. The purpose of this booklet is to assist developers to track and trace suitable source-code and solar tracking algorithms for their application, whether a hobbyist, scientist, technician or engineer. Many open-source sun following and tracking algorithms and source-code for solar tracking programs and modules are freely available to download on the internet today. Certain proprietary solar tracker kits and solar tracking controllers include a software development kit SDK for its application programming interface API attributes (Pebble). Widget libraries, widget toolkits, GUI toolkit and UX libraries with graphical control elements are also available to

construct the graphical user interface (GUI) for your solar tracking or solar power monitoring program. The solar library used by solar position calculators, solar simulation software and solar contour calculators include machine program code for the solar hardware controller which are software programmed into Micro-controllers, Programmable Logic Controllers PLC, programmable gate arrays, Arduino processor or PIC processor. PC based solar tracking is also high in demand using C++, Visual Basic VB, as well as MS Windows, Linux and Apple Mac based operating systems for sun path tables on Matlab, Excel. Some books and internet webpages use other terms, such as: sun angle calculator, sun position calculator or solar angle calculator. As said, such software code calculate the solar azimuth angle, solar altitude angle, solar elevation angle or the solar Zenith angle (Zenith solar angle is simply referenced from vertical plane, the mirror of the elevation angle measured from the horizontal or ground plane level). Similar software code is also used in solar calculator apps or the solar power calculator apps for IOS and Android smartphone devices. Most of these smartphone solar mobile apps show the sun path and sun-angles for any location and date over a 24 hour period. Some smartphones include augmented reality features in which you can physically see and look at the solar path through your cell phone camera or mobile phone camera at your phone's specific GPS location. In the computer programming and digital signal processing (DSP) environment, (free/open source) program code are available for VB, .Net, Delphi, Python, C, C+, C++, Swift, ADM, F, Flash, Basic, QBasic, GBasic, KBasic, SIMPL language, Squirrel, Solaris, Assembly language on operating systems such as MS Windows, Apple Mac, DOS or Linux OS. Software algorithms predicting position of the sun in the sky are commonly available as graphical programming platforms such as Matlab (Mathworks), Simulink models, Java applets, TRNSYS simulations, Scada system apps, Labview module, Beckhoff TwinCAT (Visual Studio), Siemens SPA, mobile and iphone apps, Android or iOS tablet apps, and so forth. At the same time, PLC software code for a range of sun tracking automation technology can follow the profile of sun in sky for Siemens, HP, Panasonic, ABB, Allan Bradley, OMRON, SEW, Festo, Beckhoff, Rockwell, Schneider, Endress Hauser, Fuji electric. Honeywell, Fuchs, Yokonawa, or Muthibishi platforms. Sun path projection software are also available for a range of modular IPC embedded PC motherboards, Industrial PC, PLC (Programmable Logic Controller) and PAC (Programmable Automation Controller) such as the Siemens S7-1200 or Siemens Logo, Beckhoff IPC or CX series, OMRON PLC, Ercam PLC, AC500plc ABB, National Instruments NI PXI or NI cRIO, PIC processor, Intel 8051/8085, IBM (Cell, Power, Brain or Truenorth series), FPGA (Xilinx Altera Nios), Xeon, Atmel megaAVR, or Arduino AtMega microcontroller, with servo motor, stepper motor, direct current DC pulse width modulation PWM (current driver) or alternating current AC SPS or IPC variable frequency drives VFD motor drives (also termed adjustable-frequency drive, variable-speed drive, AC drive, micro drive or inverter drive) for electrical, mechatronic, pneumatic, or hydraulic solar tracking actuators. The above motion control and robot

control systems include analogue or digital interfacing ports on the processors to allow for tracker angle orientation feedback control through one or a combination of angle sensor or angle encoder, shaft encoder, precision encoder, optical encoder, magnetic encoder, direction encoder, rotational encoder, chip encoder, tilt sensor, inclination sensor, or pitch sensor. Note that the tracker's elevation or zenith axis angle may be measured using an altitude angle-, declination angle-, inclination angle-, pitch angle-, or vertical angle-, zenith angle- sensor or inclinometer. Similarly the tracker's azimuth axis angle may be measured with an azimuth angle-, horizontal angle-, or roll angle- sensor. Chip integrated accelerometer magnetometer gyroscope type angle sensors can also be used to calculate displacement. Other options include the use of thermal imaging systems such as a Fluke thermal imager, or robotic or vision based solar tracker systems that employ face tracking, head tracking, hand tracking, eye tracking and car tracking principles in solar tracking. With unattended decentralised rural, island, isolated, or autonomous off-grid power installations, remote control, monitoring, data acquisition, digital datalogging and online measurement and verification equipment becomes crucial. It assists the operator with supervisory control to monitor the efficiency of remote renewable energy resources and systems and provide valuable web-based feedback in terms of CO<sub>2</sub> and clean development mechanism (CDM) reporting. A power quality analyser for diagnostics through internet, WiFi and cellular mobile links is most valuable in frontline troubleshooting and predictive maintenance, where quick diagnostic analysis is required to detect and prevent power quality issues. Solar tracker applications cover a wide spectrum of solar energy and concentrated solar devices, including solar power generation, solar desalination, solar water purification, solar steam generation, solar electricity generation, solar industrial process heat, solar thermal heat storage, solar food dryers, solar water pumping, hydrogen production from methane or producing hydrogen and oxygen from water (HHO) through electrolysis. Many patented or non-patented solar apparatus include tracking in solar apparatus for solar electric generator, solar desalinator, solar steam engine, solar ice maker, solar water purifier, solar cooling, solar refrigeration, USB solar charger, solar phone charging, portable solar charging tracker, solar coffee brewing, solar cooking or solar drying means. Your project may be the next breakthrough or patent, but your invention is held back by frustration in search for the sun tracker you require for your solar powered appliance, solar generator, solar tracker robot, solar freezer, solar cooker, solar drier, solar pump, solar freezer, or solar dryer project. Whether your solar electronic circuit diagram include a simplified solar controller design in a solar electricity project, solar power kit, solar hobby kit, solar steam generator, solar hot water system, solar ice maker, solar desalinator, hobbyist solar panels, hobby robot, or if you are developing professional or hobby electronics for a solar utility or micro scale solar powerplant for your own solar farm or solar farming, this publication may help accelerate the development of your solar tracking innovation. Lately, solar polygeneration, solar trigeneration (solar triple

generation), and solar quad generation (adding delivery of steam, liquid/gaseous fuel, or capture food-grade CO<sub>2</sub>) systems have need for automatic solar tracking. These systems are known for significant efficiency increases in energy yield as a result of the integration and re-use of waste or residual heat and are suitable for compact packaged micro solar powerplants that could be manufactured and transported in kit-form and operate on a plug-and play basis. Typical hybrid solar power systems include compact or packaged solar micro combined heat and power (CHP or mCHP) or solar micro combined, cooling, heating and power (CCHP, CHPC, mCCHP, or mCHPC) systems used in distributed power generation. These systems are often combined in concentrated solar CSP and CPV smart microgrid configurations for off-grid rural, island or isolated microgrid, minigrid and distributed power renewable energy systems. Solar tracking algorithms are also used in modelling of trigeneration systems using Matlab and Simulink platform as well as in automation and control of renewable energy systems through intelligent parsing, multi-objective, adaptive learning control and control optimization strategies. Solar tracking algorithms also find application in developing solar models for country or location specific solar studies, for example in terms of measuring or analysis of the fluctuations of the solar radiation (i.e. direct and diffuse radiation) in a particular area. Solar DNI, solar irradiance and atmospheric information and models can thus be integrated into a solar map, solar atlas or geographical information systems (GIS). Such models allows for defining local parameters for specific regions that may be valuable in terms of the evaluation of different solar in photovoltaic or CSP systems on simulation and synthesis platforms such as Matlab and Simulink or in linear or multi-objective optimization algorithm platforms such as COMPOSE, EnergyPLAN or DER-CAM. A dual-axis solar tracker and single-axis solar tracker may use a sun tracker program or sun tracker algorithm to position a solar dish, solar panel array, heliostat array, PV panel, solar antenna or infrared solar nantenna. A self-tracking solar concentrator performs automatic solar tracking by computing the solar vector. Solar position algorithms (TwinCAT, SPA, or PSA Algorithms) use an astronomical algorithm to calculate the position of the sun. It uses astronomical software algorithms and equations for solar tracking in the calculation of sun's position in the sky for each location on the earth at any time of day. Like an optical solar telescope, the solar position algorithm pin-points the solar reflector at the sun and locks onto the sun's position to track the sun across the sky as the sun progresses throughout the day. Optical sensors such as photodiodes, light-dependant-resistors (LDR) or photoresistors are used as optical accuracy feedback devices. Lately we also included a section in the book (with links to microprocessor code) on how the PixArt Wii infrared camera in the Wii remote or Wiimote may be used in infrared solar tracking applications. In order to harvest free energy from the sun, some automatic solar positioning systems use an optical means to direct the solar tracking device. These solar tracking strategies use optical tracking techniques, such as a sun sensor means, to direct sun rays onto a silicon or CMOS substrate to



Per Computer Forensics si intende l'applicazione di un metodo investigativo scientifico al mondo digitale per ricavare elementi, informazioni, prove da portare in sede processuale. Un investigatore deve cioè essere in grado di avvicinarsi a un sistema informativo per determinare se esso sia stato utilizzato in attività illecite o non autorizzate, avendo cura di non alterare le possibili prove. La scena del crimine può quindi essere un computer, un supporto rimovibile, una rete o qualsiasi altro medium digitale. Ma c'è di più. Poiché la disciplina coinvolge la materia legale, il valore di una prova in sede processuale varia a seconda della legislazione. Quindi è necessario sapere come e che tipo di prova può essere considerata valida in Italia. Questo libro, edito nel 2009, è scritto da un esperto di indagini forensi nel "mondo elettronico" coadiuvato da un legale specializzato negli aspetti giuridici degli "illeciti digitali".

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Rappresentare con verità storica, anche scomoda ai potenti di turno, la realtà contemporanea, rapportandola al passato e proiettandola al futuro. Per non reiterare vecchi errori. Perché la massa dimentica o non conosce. Denuncio i difetti e caldeggi i pregi italici. Perché non abbiamo orgoglio e dignità per migliorarci e perché non sappiamo apprezzare, tutelare e promuovere quello che abbiamo ereditato dai nostri avi. Insomma, siamo bravi a farci del male e qualcuno deve pur essere diverso!

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