

## Vehicle Tracking And Speed Estimation Using Optical Flow

On-Road Intelligent Vehicles: Motion Planning for Intelligent Transportation Systems deals with the technology of autonomous vehicles, with a special focus on the navigation and planning aspects, presenting the information in three parts. Part One deals with the use of different sensors to perceive the environment, thereafter mapping the multi-domain senses to make a map of the operational scenario, including topics such as proximity sensors which give distances to obstacles, vision cameras, and computer vision techniques that may be used to pre-process the image, extract relevant features, and use classification techniques like neural networks and support vector machines for the identification of roads, lanes, vehicles, obstacles, traffic lights, signs, and pedestrians. With a detailed insight into the technology behind the vehicle, Part Two of the book focuses on the problem of motion planning. Numerous planning techniques are discussed and adapted to work for multi-vehicle traffic scenarios, including the use of sampling based approaches comprised of Genetic Algorithm and Rapidly-exploring Random Trees and Graph search based approaches, including a hierarchical decomposition of the algorithm and heuristic selection of nodes for limited exploration, Reactive Planning based approaches, including Fuzzy based planning, Potential Field based planning, and Elastic Strip and logic based planning. Part Three of the book covers the macroscopic concepts related to Intelligent Transportation Systems with a discussion of various topics and concepts related to transportation systems, including a description of traffic flow, the basic theory behind transportation systems, and generation of shock waves. Provides an overall coverage of autonomous vehicles and Intelligent Transportation Systems Presents a detailed overview, followed by the challenging problems of navigation and planning Teaches how to compare, contrast, and differentiate navigation algorithms

This book constitutes the refereed proceedings of the 14th Scandinavian Conference on Image Analysis, SCIA 2005, held in Joensuu, Finland in June 2005. The 124 papers presented together with 6 invited papers were carefully reviewed and selected from 236 submissions. The papers are organized in topical sections on image segmentation and understanding, color image processing, applications, theory, medical image processing, image compression, digitalization of cultural heritage, computer vision, machine vision, and pattern recognition. The two volume-set, LNCS 7930 and LNCS 7931, constitutes the refereed proceedings of the 5th International Work-Conference on the Interplay between Natural and Artificial Computation, IWINAC 2013, held in Mallorca, Spain, in June 2013. The 92 revised full papers presented in LNCS 7930 and LNCS 7931 were carefully reviewed and selected from numerous submissions. The first part, LNCS 7930, entitled "Natural and Artificial Models in Computation and Biology", includes all the contributions mainly related to the methodological, conceptual, formal, and experimental developments in the fields of neurophysiology and cognitive science. The second part, LNCS 7931, entitled "Natural and Artificial Computation in Engineering and Medical Applications", contains the papers related to bioinspired programming strategies and all the contributions related to the computational solutions to engineering problems in different application domains, specially Health applications, including the CYTED "Artificial and Natural Computation for Health" (CANS) research network papers. In addition, this two volume-set reflects six interesting areas: cognitive robotics; natural computing; wetware computation; quality of life technologies; biomedical and industrial perception applications; and Web intelligence and neuroscience.

This book constitutes the refereed proceedings of the 14th Conference on Advances in Autonomous Robotics, TAROS 2013, held in Oxford, UK, in August 2013. The 36 revised full papers presented together with 25 extended abstracts were carefully reviewed and selected from 89 submissions. The papers cover various topics such as artificial intelligence, bio-inspired and aerial robotics, computer vision, control, humanoid and robotic arm, swarm robotics, verification and ethics.

This book is a collection of carefully selected works presented at the Third International Conference on Computer Vision & Image Processing (CVIP 2018). The conference was organized by the Department of Computer Science and Engineering of PDPM Indian Institute of Information Technology, Design & Manufacturing, Jabalpur, India during September 29–October 01, 2018. All the papers have been rigorously reviewed by the experts from the domain. This 2 volume proceedings include technical contributions in the areas of Image/Video Processing and Analysis; Image/Video Formation and Display; Image/Video Filtering, Restoration, Enhancement and Super-resolution; Image/Video Coding and Transmission; Image/Video Storage, Retrieval and Authentication; Image/Video Quality; Transform-based and Multi-resolution Image/Video Analysis; Biological and Perceptual Models for Image/Video Processing; Machine Learning in Image/Video Analysis; Probability and uncertainty handling for Image/Video Processing; and Motion and Tracking.

This book constitutes the proceedings of the 15th International Conference on Transport Systems Telematics, TST 2015, held in Wroc?aw, Poland, in April 2015. The 35 revised full papers and two short papers included in this volume were carefully reviewed and selected from 115 submissions. The papers provide an overview of solutions being developed in the fields of transport telematics and intelligent transport systems.

The two-volume set LNAI 12033 and 11034 constitutes the refereed proceedings of the 12th Asian Conference on Intelligent Information and Database Systems, ACIIDS 2020, held in Phuket, Thailand, in March 2020. The total of 105 full papers accepted for publication in these proceedings were carefully reviewed and selected from 285 submissions. The papers of the first volume are organized in the following topical sections: Knowledge Engineering and Semantic Web, Natural Language Processing, Decision Support and Control Systems, Computer Vision Techniques, Machine Learning and Data Mining, Deep Learning Models, Advanced Data Mining Techniques and Applications, Multiple Model Approach to Machine Learning. The papers of the second volume are divided into these topical sections: Application of Intelligent Methods to Constrained Problems, Automated Reasoning with Applications in Intelligent Systems, Current Trends in Artificial Intelligence, Optimization, Learning, and Decision-Making in Bioinformatics and Bioengineering, Computer Vision and Intelligent Systems, Data Modelling and Processing for Industry 4.0, Intelligent Applications of Internet of Things and Data Analysis Technologies, Intelligent and Contextual Systems, Intelligent Systems and Algorithms in Information Sciences, Intelligent Supply Chains and e-Commerce, Privacy, Security and Trust in Artificial Intelligence, Interactive Analysis of Image, Video and Motion Data in LifeSciences.

Sensors are the eyes or/and ears of an intelligent system, such as UAV, AGV and robots. With the development of material, signal processing, and multidisciplinary interactions, more and more smart sensors are proposed and fabricated under increasing demands for homes, the industry, and military fields. Networks of sensors will be able to enhance the ability to obtain huge amounts of information (big data) and improve precision, which also mirrors the developmental tendency of modern sensors. Moreover, artificial intelligence is a novel impetus for sensors and networks, which gets sensors to learn and think and feed more efficient results back. This book includes new research results from academia and industry, on the subject of "Smart Sensors and Networks", especially sensing technologies utilizing Artificial Intelligence. The topics include: smart sensors biosensors sensor network sensor data fusion artificial intelligence deep learning mechatronics devices for sensors applications of sensors for robotics and mechatronics devices

Written by experts in their area of research, this book has outlined the current status of the fundamentals and analytical concepts, modelling and design issues, technical details and practical applications of different types of sensors and discussed about the trends of next generation of sensors and systems happening in the area of Sensing technology. This book will be useful as a reference book for engineers and scientist especially the post-graduate students find will this book as reference book for their research on wearable sensors, devices and technologies. This Springer Brief presents a comprehensive survey of the existing methodologies of background subtraction methods. It presents a framework for quantitative performance evaluation of different approaches and summarizes the public databases available for research purposes. This well-known methodology has applications in moving object detection from video captured with a stationery camera, separating

foreground and background objects and object classification and recognition. The authors identify common challenges faced by researchers including gradual or sudden illumination change, dynamic backgrounds and shadow and ghost regions. This brief concludes with predictions on the future scope of the methods. Clear and concise, this brief equips readers to determine the most effective background subtraction method for a particular project. It is a useful resource for professionals and researchers working in this field.

Ongoing advancements in modern technology have led to significant developments in intelligent systems. With the numerous applications available, it becomes imperative to conduct research and make further progress in this field. *Intelligent Systems: Concepts, Methodologies, Tools, and Applications* contains a compendium of the latest academic material on the latest breakthroughs and recent progress in intelligent systems. Including innovative studies on information retrieval, artificial intelligence, and software engineering, this multi-volume book is an ideal source for researchers, professionals, academics, upper-level students, and practitioners interested in emerging perspectives in the field of intelligent systems.

This book constitutes the refereed proceedings of the First International Conference on Digital Image Processing and Pattern Recognition, DPPR 2011, held in Tirunelveli, India, in September 2011. The 48 revised full papers were carefully reviewed and selected from about 400 submissions. The conference brought together leading researchers, engineers and scientists in the domain of Digital Image Processing and Pattern Recognition. The papers cover all theoretical and practical aspects of the field and present new advances and current research results in two tracks, namely: digital image processing and pattern recognition, and computer science, engineering and information technology.

supporting the Conference.

The research book is a continuation of the authors' previous works, which are focused on recent advances in computer vision methodologies and technical solutions using conventional and intelligent paradigms. The book gathers selected contributions addressing aerial and satellite image processing and related fields. Topics covered include novel tensor and wave models, a new comparative morphology scheme, warping compensation in video stabilization, image deblurring based on physical processes of blur impacts, and a rapid and robust core structural verification algorithm for feature extraction in images and videos, among others. All chapters focus on practical implementations. Given the tremendous interest among researchers in the development and applications of computer vision paradigms in the field of business, engineering, medicine, security and aviation, this book offers a timely guide.

The main objective of CSAIT 2013 is to provide a forum for researchers, educators, engineers and government officials involved in the general areas of Computational Sciences and Information Technology to disseminate their latest research results and exchange views on the future research directions of these fields. A medium like this provides an opportunity to the academicians and industrial professionals to exchange and integrate practice of computer science, application of the academic ideas, improve the academic depth. The in-depth discussions on the subject provide an international communication platform for educational technology and scientific research for the world's universities, engineering field experts, professionals and business executives.

This 2-Volume-Set, CCIS 0269-CCIS 0270, constitutes the refereed proceedings of the International Conference on Global Trends in Computing and Communication (CCIS 0269) and the International Conference on Global Trends in Information Systems and Software Applications (CCIS 0270), ObCom 2011, held in Vellore, India, in December 2011. The 173 full papers presented together with a keynote paper and invited papers were carefully reviewed and selected from 842 submissions. The conference addresses issues associated with computing, communication and information. Its aim is to increase exponentially the participants' awareness of the current and future direction in the domains and to create a platform between researchers, leading industry developers and end users to interrelate.

We believe education is our motherhood and research is our motto Our intention is to collaborate innovative brains at one place So, here we are with International Conference on Current Trends in Computer, Electrical, Electronics and Communication (ICCTCEEC) platform to share, learn and discuss We guarantee your pleasure because our city itself mean you what are we

This book introduces the Special Issue entitled "Applications of Internet of Things", of ISPRS International Journal of Geo-Information.

Topics covered in this issue include three main parts: (I) intelligent transportation systems (ITSs), (II) location-based services (LBSs), and (III) sensing techniques and applications. Three papers on ITSs are as follows: (1) "Vehicle positioning and speed estimation based on cellular network signals for urban roads," by Lai and Kuo; (2) "A method for traffic congestion clustering judgment based on grey relational analysis," by Zhang et al.; and (3) "Smartphone-based pedestrian's avoidance behavior recognition towards opportunistic road anomaly detection," by Ishikawa and Fujinami. Three papers on LBSs are as follows: (1) "A high-efficiency method of mobile positioning based on commercial vehicle operation data," by Chen et al.; (2) "Efficient location privacy-preserving k-anonymity method based on the credible chain," by Wang et al.; and (3) "Proximity-based asynchronous messaging platform for location-based Internet of things service," by Gon Jo et al. Two papers on sensing techniques and applications are as follows: (1) "Detection of electronic anklet wearers' groupings throughout telematics monitoring," by Machado et al.; and (2) "Camera coverage estimation based on multistage grid subdivision," by Wang et al.

This book includes a selection of articles from The 2019 World Conference on Information Systems and Technologies (WorldCIST'19), held from April 16 to 19, at La Toja, Spain. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and challenges in modern information systems and technologies research, together with their technological development and applications. The book covers a number of topics, including A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human-Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; and N) Technologies for Biomedical Applications.

This proceeding features papers discussing big data innovation for sustainable cognitive computing. The papers feature detail on cognitive computing and its self-learning systems that use data mining, pattern recognition and natural language processing (NLP) to mirror the way the human brain works. This international conference focuses on cognitive computing technologies, from knowledge representation techniques and natural language processing algorithms to dynamic learning approaches. Topics covered include Data Science for Cognitive Analysis, Real-Time Ubiquitous Data Science, Platform for Privacy Preserving Data Science, and Internet-Based Cognitive Platform. The EAI International Conference on Big Data Innovation for Sustainable Cognitive Computing (BDCC 2018), took place on 13 – 15 December 2018 in Coimbatore, India.

The first book, by the leading experts, on this rapidly developing field with applications to security, smart homes, multimedia, and environmental monitoring Comprehensive coverage of fundamentals, algorithms, design methodologies, system implementation issues, architectures, and applications Presents in detail the latest developments in multi-camera calibration, active and heterogeneous camera networks, multi-camera object and event detection, tracking, coding, smart camera architecture and middleware This book is the definitive reference in multi-camera networks. It gives clear guidance on the conceptual and implementation issues involved in the design and operation of multi-camera networks, as well as presenting the state-of-the-art in hardware, algorithms and system development. The book is broad in scope, covering smart camera architectures, embedded processing, sensor fusion and middleware, calibration and topology, network-based detection and tracking, and applications in distributed and collaborative methods in camera networks. This book will be an

ideal reference for university researchers, R&D engineers, computer engineers, and graduate students working in signal and video processing, computer vision, and sensor networks. Hamid Aghajan is a Professor of Electrical Engineering (consulting) at Stanford University. His research is on multi-camera networks for smart environments with application to smart homes, assisted living and well being, meeting rooms, and avatar-based communication and social interactions. He is Editor-in-Chief of Journal of Ambient Intelligence and Smart Environments, and was general chair of ACM/IEEE ICDCS 2008. Andrea Cavallaro is Reader (Associate Professor) at Queen Mary, University of London (QMUL). His research is on target tracking and audiovisual content analysis for advanced surveillance and multi-sensor systems. He serves as Associate Editor of the IEEE Signal Processing Magazine and the IEEE Trans. on Multimedia, and has been general chair of IEEE AVSS 2007, ACM/IEEE ICDCS 2009 and BMVC 2009. The first book, by the leading experts, on this rapidly developing field with applications to security, smart homes, multimedia, and environmental monitoring Comprehensive coverage of fundamentals, algorithms, design methodologies, system implementation issues, architectures, and applications Presents in detail the latest developments in multi-camera calibration, active and heterogeneous camera networks, multi-camera object and event detection, tracking, coding, smart camera architecture and middleware

Acts as single source reference providing readers with an overview of how computer vision can contribute to the different applications in the field of road transportation This book presents a survey of computer vision techniques related to three key broad problems in the roadway transportation domain: safety, efficiency, and law enforcement. The individual chapters present significant applications within those problem domains, each presented in a tutorial manner, describing the motivation for and benefits of the application, and a description of the state of the art. Key features: Surveys the applications of computer vision techniques to road transportation system for the purposes of improving safety and efficiency and to assist law enforcement. Offers a timely discussion as computer vision is reaching a point of being useful in the field of transportation systems. Available as an enhanced eBook with video demonstrations to further explain the concepts discussed in the book, as well as links to publically available software and data sets for testing and algorithm development. The book will benefit the many researchers, engineers and practitioners of computer vision, digital imaging, automotive and civil engineering working in intelligent transportation systems. Given the breadth of topics covered, the text will present the reader with new and yet unconceived possibilities for application within their communities.

Transport Infrastructure Asset management in transport infrastructure, financial viability of transport engineering projects/ Life cycle Cost Analysis, Life-Cycle Assessment and Sustainability Assessment of transport infrastructure/ Infrastructures financing and pricing with equity appraisal, operation optimization and energy management/ Low-Volume roads: planning, maintenance, operations, environmental and social issues/ Public-Private Partnership (PPP) experience in transport infrastructure in different countries and economic conditions/ Airport Pavement Management Systems, runway design and maintenance/ Port maintenance and development issues, technology relating to cargo handling, landside access, cruise operations/ Infrastructure Building Information Modelling (I-BIM) / Pavement design and innovative bituminous materials/ Recycling and re-use in road pavements, environmentally sustainable technologies/ Stone pavements, ancient roads and historic railways/ Cementitious stabilization of materials used in the rehabilitation of transportation infrastructure. Transport Systems Sustainable transport and the environment protection including green vehicles/ Urban transport, land use development, spatial and transport planning/ Bicycling, bike, bike-sharing systems, cycling mobility/ Human factor in transport systems/ Intelligent Mobility: emerging technologies to enable the smarter movement of people and goods/Airport landside: access roads, parking facilities, terminal facilities, aircraft apron and the adjacent taxiway/ Transportation policy, planning and design, modelling and decision making/ Transport economics, finance and pricing issues, optimization problems, equity appraisal/ Road safety impact assessments, road safety audits, the management of road network safety and safety inspections/ Tunnels and underground structures: preventing incidents-accidents mitigating their effects for both people and goods/ Traffic flow characteristics, traffic control devices, work zone traffic control, highway capacity and quality of service/ Track-vehicle interactions in railway systems, capacity analysis of railway networks/ Risk assessment and safety in air and railway transport, reliability aspects/ Maritime transport and inland waterways transport research/ Intermodal freight transport: terminals and logistics.

The conference will be held in Osaka, Japan during April 24-26, 2020 The aim as well as objective of ICCRE 2020 is to present the latest research and results of scientists related to Control and Robotics Engineering topics

This book contains the proceedings of the ROBOT 2013: FIRST IBERIAN ROBOTICS CONFERENCE and it can be said that included both state of the art and more practical presentations dealing with implementation problems, support technologies and future applications. A growing interest in Assistive Robotics, Agricultural Robotics, Field Robotics, Grasping and Dexterous Manipulation, Humanoid Robots, Intelligent Systems and Robotics, Marine Robotics, has been demonstrated by the very relevant number of contributions. Moreover, ROBOT2013 incorporates a special session on Legal and Ethical Aspects in Robotics that is becoming a topic of key relevance. This Conference was held in Madrid (28-29 November 2013), organized by the Sociedad Española para la Investigación y Desarrollo en Robótica (SEIDROB) and by the Centre for Automation and Robotics - CAR (Universidad Politécnica de Madrid (UPM) and Consejo Superior de Investigaciones Científicas (CSIC)), along with the co-operation of Grupo Temático de Robótica CEA-GTRob, "Sociedade Portuguesa de Robotica" (SPR), "Asociación Española de Promoción de la Investigación en Agentes Físicos" (RedAF), and partially supported by "Comunidad de Madrid under RoboCity2030 Programme".

The book is about all aspects of computing, communication, general sciences and educational research covered at the Second International Conference on Computer & Communication Technologies held during 24-26 July 2015 at Hyderabad. It hosted by CMR Technical Campus in association with Division – V (Education & Research) CSI, India. After a rigorous review only quality papers are selected and included in this book. The entire book is divided into three volumes. Three volumes cover a variety of topics which include medical imaging, networks, data mining, intelligent computing, software design, image processing, mobile computing, digital signals and speech processing, video surveillance and processing, web mining, wireless sensor networks, circuit analysis, fuzzy systems, antenna and communication systems, biomedical signal processing and applications, cloud computing, embedded systems applications and cyber security and digital forensic. The readers of these volumes will be highly benefited from the technical contents of the topics.

This project is intends to develop a vehicle tracking and speed estimation using digital image processing technique. Therefore this project needs a video input to make the system work. The system is designed to track the vehicle position and calculate its moving speed. The method that uses to estimate the speed of the moving vehicle currently is RADAR (Radio Detection and Ranging). But this method requires high end equipment, which means the cost for this method is high. Therefore an alternative way is needed. This proposed method is using the image processing technique. This system consists of 4 major steps: 1) image acquisition 2) image background subtraction 3) location detection 4) speed estimation. The rate of accuracy for this system is expected to have 99%.

The Oxford University Robotics Research Group has been working for several years to improve the ability of automated guided vehicles. This book brings together much of the key research work on sensors and planning that was inspired by an industrial vehicle donated by a factory automation division in GEC, GEC-FAST, together with background material to provide a basic but up-to-date reference guide to autonomous vehicle research. The book includes work on control, sensing technologies, sensor management and data-fusion, different styles of path planning suited for off-line or online plans and task planning. It is designed to act both as a reference for the robotics professional, and as a text for university-level courses. Contents: IntroductionReal Time Architectures for Sensing and Planning:The Oxford Project and the GEC AGVSensor-Based Control ArchitectureSonar Directed PlanningSensing and Navigation:Low Cost Range Sensors for Reactive

PlanningOptical Triangulation Range SensorsModular Sonar Sensing for Vehicle NavigationArchitectures and Algorithms for 3-D VisionRange Image Feature Extraction and RepresentationModel Based Planning:Introduction to Path PlanningPath Planning for the AGVTask PlanningModelling Readership: Engineers, students and researchers in robotics. keywords:

In 1986, B.K.P. Horn published a book entitled Robot Vision, which actually discussed a wider field of subjects, basically addressing the field of computer vision, but introducing “robot vision” as a technical term. Since then, the interaction between computer vision and research on mobile systems (often called “robots”, e.g., in an industrial context, but also including vehicles, such as cars, wheelchairs, tower cranes, and so forth) established a diverse area of research, today known as robot vision. Robot vision (or, more general, robotics) is a fast-growing discipline, already taught as a dedicated teaching program at university level. The term “robot vision” addresses any autonomous behavior of a technical system supported by visual sensoric information. While robot vision focusses on the vision process, visual robotics is more directed toward control and automatization. In practice, however, both fields strongly interact. Robot Vision 2008 was the second international workshop, counting a 2001 workshop with identical name as the first in this series. Both workshops were organized in close cooperation between researchers from New Zealand and Germany, and took place at The University of Auckland, New Zealand. Participants of the 2008 workshop came from Europe, USA, South America, the Middle East, the Far East, Australia, and of course from New Zealand.

This book constitutes the refereed proceedings of the 6th International Conference on Advances in Visual Informatics, IVIC 2019, held in Bangi, Malaysia, in November 2019. The 65 papers presented were carefully reviewed and selected from 130 submissions. The papers are organized into the following topics: Visualization and Digital Innovation for Society 5.0; Engineering and Digital Innovation for Society 5.0; Cyber Security and Digital Innovation for Society 5.0; and Social Informatics and Application for Society 5.0.

The purpose of this Special Issue is to create an academic platform whereby high-quality research papers are published on the applications of innovative AI algorithms to transportation planning and operation. The authors present their original research articles related to the applications of AI or machine-learning techniques to transportation planning and operation. The topics of the articles encompass traffic surveillance, traffic safety, vehicle emission reduction, congestion management, traffic speed forecasting, and ride sharing strategy.

This book gathers selected research papers presented at the International Conference on Recent Trends in Machine Learning, IOT, Smart Cities & Applications (ICMISC 2020), held on 29–30 March 2020 at CMR Institute of Technology, Hyderabad, Telangana, India. Discussing current trends in machine learning, Internet of things, and smart cities applications, with a focus on multi-disciplinary research in the area of artificial intelligence and cyber-physical systems, this book is a valuable resource for scientists, research scholars and PG students wanting formulate their research ideas and find the future directions in these areas. Further, it serves as a reference work anyone wishing to understand the latest technologies used by practicing engineers around the globe.

Fundamental transformations are imminent for the automobile today: propulsion technologies are going to shift from combustion engines to electric motors; cars and roads will soon be as safe and convenient as never before; and traffic will flow increasingly efficient. Many of these advancements are due to innovative information and communication technologies, controls and smart systems, both in the vehicle and at its interfaces with the systems for power supply, mobility and data communication. The papers published in this book are selected from the submissions to the 15th International Forum on Advanced Microsystems for Automotive Applications (AMAA 2011) “Smart Systems for Electric, Safe and Networked Mobility”. They cover components, architectures and smart systems enabling the following functionalities: electric driving, safe cars and roads, and connected vehicles. Additional information is available at [www.amaa.de](http://www.amaa.de)

The Environmental Noise Directive (END) requires that a five-year updating of noise maps is carried out to check and report on the changes that have occurred during the reference period. The updating process is usually achieved using a standardized approach consisting of collecting and processing information through acoustic models to produce the updated noise maps. This procedure is time consuming and costly, and has a significant impact on the financial statement of the authorities responsible for providing the maps. Furthermore, the END requires that easy-to-read noise maps are made available to the public to provide information on noise levels and the subsequent actions to be undertaken by local and central authorities to reduce noise impacts. In order to update the noise maps more easily and in a more effective way, it is convenient to design an integrated system incorporating real-time noise measurement and signal processing to identify and analyze the noise sources present in the mapping area (e.g., road traffic noise, leisure noise, etc.) as well as to automatically generate and present the corresponding noise maps. This wireless acoustic sensor network design requires transversal knowledge, from accurate hardware design for acoustic sensors to network structure design and management of the information with signal processing to identify the origin of the measured noise and graphical user interface application design to present the results to end users. This book is collection in which several views of methodology and technologies required for the development of an efficient wireless acoustic sensor network from the first stages of its design to the tests conducted during deployment, its final performance, and possible subsequent implications for authorities in terms of the definition of policies. Contributions include several LIFE and H2020 projects aimed at the design and implementation of intelligent acoustic sensor networks with a focus on the publication of good practices for the design and deployment of intelligent networks in other locations.

Vehicle Tracking and Speed Estimation System

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