

Preface

This book covers all aspects relevant to vehicular communication technologies in one place. It classifies all relevant standards, protocols, and applications, so as to enable the reader to gain a holistic approach towards the extremely intriguing subject of vehicular communications.

The book's purpose is to become the unique place where a reader can turn to study everything that is related to vehicle to vehicle (V2V) as well as vehicle to infrastructure (V2I) technologies, classified appropriately and in a unique manner, so as to facilitate understanding.

Particular interest is placed on state-of-the-art research and development results in the field as well as research areas envisaged to attract immense research effort.

The book's main methods lie in algorithmic processes and simulation results as well as in trying to simplify all relevant technologies through a careful classification.

The book is structured as follows.

Chapter 1 provides the motivation for getting involved in the vehicular communications field, through presenting transport drawbacks and challenges.

Chapter 2 contains an extensive overview of the commonly used (and researched) standards and protocols related to V2V and V2I communications.

Chapter 3 provides a description of the context in which V2V and V2I communications operate, namely smart cities, as well as explains why smart cities are in need of novel sustainable vehicular communications. Indicative case studies give an overview of related applications in the field.

Chapter 4 focuses on Advanced Driver Assistance Systems (ADAS), presenting their main focus areas as well as including a number of case studies for exemplifying the operation of ADAS solutions.

Chapter 5 focuses on the management functionality that is researched, in the context of ADAS, focusing on the related algorithms commonly utilized.

Last, Chapter 6 gives an overview of the earlier as well as the latest trends in the field of automated and autonomous driving, providing also an outlook on the future, with some interesting perspectives for future research.

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