

<<无线传感器网络同步技术>>

图书基本信息

书名：<<无线传感器网络同步技术>>

13位ISBN编号：9787030315205

10位ISBN编号：7030315200

出版时间：2011-6

出版时间：科学出版社

作者：（美）塞佩丁 等著

页数：232

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<无线传感器网络同步技术>>

内容概要

无线传感器网络在民用与军用设备中有着广泛的应用。微传感器以无线互联的形式完成高度分散系统中的感应、计算、通信以及控制等工作。

塞佩丁编著的《无线传感器网络同步技术（影印版）》介绍了无线传感器网络部署中的一项最关键的技术：同步技术。

本书概述了无线传感器网络中的时钟同步协议，着重讲解了导出高效时钟补偿评估方法以及运行评估指标等技术手段。

《无线传感器网络同步技术（影印版）》适合电子信息专业、计算机专业的高年级本科生、研究生以及相关研究人员阅读。

<<无线传感器网络同步技术>>

作者简介

作者：（美国）Erchin Serpedin （美国）Qasim M.Chaudhari

<<无线传感器网络同步技术>>

书籍目录

PREFACE page XI

1 INTRODUCTION page

1.1 Wireless Sensor Networks

1.2 Time Synchronization

1.3 Importance of Time Synchronization

1.4 History of Clock Synchronization

1.5 Outline

2 SIGNAL MODELS FOR TIME SYNCHRONIZATION page IO

2.1 Definition of Clock lo

2.2 Design Considerations

2.3 Delay Components in Timing Message Delivery

3 TIME SYNCHRONIZATION PROTOCOLS page

3.1 Pairwise Synchronization -

3.1.1 Timing-Sync Protocol for Sensor Networks
(TPSN)

3.1.2 Tiny-Sync and Mini-Sync

3.1.3 Reference Broadcast Synchronization
(RBS)

3.1.4 Flooding Time Synchronization Protocol
(FTSP)

3.2 Network-Wide Synchronization

3.2.1 Extension of TPSN

3.2.2 Lightweight Time Synchronization
(LTS)

3.2.3 Extension of RBS

3.2.4 Extension of FTSP

3.2.5 Pairwise Broadcast Synchronization
(PBS)

3.2.6 Time Diffusion Protocol (TDP)

3.2.7 Synchronous and Asynchronous Diffusion
Algorithms

3.2.8 Protocols Based on Pulse Transmissions

-

3.3 Adaptive Time Synchronization

3.3.1 Rate-Adaptive Time Synchronization
(RATS)

3.3.2 RBS-based Adaptive Clock
Synchronization

3.3.3 Adaptive Multi-Hop Time
Synchronization (AMTS)

4 FUNDAMENTAL APPROACHES TO TIME SYNCHRONIZATION page

4.1 Sender-Receiver Synchronization (SRS)

4.2 Receiver-Only Synchronization (ROS)

4.3 Receiver-Receiver Synchronization
(RRS)

<<无线传感器网络同步技术>>

4.4 COmparisons

5 MINIMUM VARIANCE UNBIASED ESTIMATION (MVUE) OF CLOCK OFFSET

page

5.1 The System Architecture -

5.2 Best Linear Unbiased Estimation Using Order

Statistics (BLUE-OS)

5.2.1 Symmetric Link Delays

5.2.2 Asymmetric Link Delays -

5.3 Minimum Variance Unbiased Estimation (MVUE)

5.3.1 Asymmetric Link Delays

5.3.2 Symmetric Link Delays

5.4 Explanatory Remarks

6 CLOCK OFFSET AND SKEW ESTIMATION page

6.1 Gaussian Delay Model

6.1.1 Maximum Likelihood (ML) Clock Offset

Estimation -

6.1.2 Cramer-Rao Lower Bound (CRLB) for Clock
Offset

6.1.3 Joint Maximum Likelihood Estimation (JMLE)
of Clock Offset and Skew

6.1.4 Cramer-Rao Lower Bound (CRLB) for Clock
Offset and Skew

6.2 Exponential Delay Model.

6.2.1 Cramer-Rao Lower Bound (CRLB) for Clock
Offset -

6.2.2 Joint Maximum Likelihood Estimation (JMLE)
of Clock Offset and Skew

7 COMPUTATIONALLY SIMPLIFIED SCHEMES FOR ESTIMATION OF CLOCK OFFSET
AND SKEW page

7.1 Using the First and the Last Data
Sample

7.1.1 Gaussian Delay Model

7.1.2 Exponential Delay Model

7.1.3 Combination of Clock Offset and Skew

Estimation

7.1.4 Simulation Results

7.2 Fitting the Line Between Two Points at Minimum Distance
Apart

7.2.1 Simulation Results lol

7.2.2 Computational Complexity Comparison

lo

8 PAIRWISE BROADCAST SYNCHRONIZATION (PBS) - page lo

8.1 Synchronization for Single-Cluster Networks

lo

8.2 Comparisons and Analysis lo

8.3 Synchronization for Multi-Cluster Networks - lo

8.3.1 Network-Wide Pair Selection

<<无线传感器网络同步技术>>

Algorithm (NPA) IO

8.3.2 Group-Wise Pair Selection Algorithm
(GPA) - 1io

8.4 Comparisons and Analysis

9 ENERGY-EFFICIENT ESTIMATION OF CLOCK OFFSET FOR INACTIVE
NODES page

9.1 Problem Formulation

9.2 Maximum Likelihood Estimation (MLE)

9.3 Cramer-Rao Lower Bound (CRLB)

9.3.1 CRLB for the Clock Offset of Inactive Node

q

9.3.2 CRLB for the Clock Offset of Active Node

t'

9.4 Simulation Results

10 SOME IMPROVED AND GENERALIZED ESTIMATION SCHEMES FOR CLOCK
SYNCHRONIZATION OF INACTIVE NODES page

10.1 Asymmetric Exponential Link Delays

10.1.1 Best Linear Unbiased Estimation

Using Order Statistics (BLUE-OS)

10.1.2 Minimum Variance Unbiased Estimation

(MVUE)

10.1.3 Minimum Mean Square Error (MMSE)

Estimation

10.2 Symmetric Exponential Link Delays -

10.2.1 Best Linear Unbiased Estimation

Using Order Statistics (BLUE-OS)

10.2.2 Minimum Variance Unbiased

Estimation (MVUE)

10.2.3 Minimum Mean Square Error (MMSE)

Estimation

11 ADAPTIVE MULTI-HOP TIME SYNCHRONIZATION (AMTS) page

I

11.1 Main Ideas -

11.2 Level Discovery Phase

11.3 Synchronization Phase

11.4 Network Evaluation Phase 16o

11.4.1 Synchronization Mode Selection

16o

11.4.2 Determination of Synchronization

Period

11.4.3 Determination of the Number of

Beacons

11.4.4 Sequential Multi-Hop

Synchronization Algorithm (SMA)

11.5 Simulation Results -

12 CLOCK DRIFT ESTIMATION FOR ACHIEVING LONG-TERM SYNCHRONIZATION -
page

<<无线传感器网络同步技术>>

- 12.1 Problem Formulation 170
- 12.2 The Estimation Procedure
- 13 JOINT SYNCHRONIZATION OF CLOCK OFFSET AND SKEW IN a RECEIVER-RECEIVER PROTOCOL page
- 13.1 Modeling Assumptions
- 13.2 Joint Maximum Likelihood Estimation (JMLE) of the Offset and Skew
- 13.3 Application of the Gibbs Sampler
- 13.4 Performance Bounds and Simulations
- 14 ROBUST ESTIMATION OF CLOCK OFFSET page
- 14.1 Problem Modeling and Objectives -
- 14.2 Gaussian Mixture Kalman Particle Filter (GMKPF)
- 14.3 Testing the Performance of GMKPF -
- 14.4 Composite Particle Filtering (CPF) with Bootstrap Sampling (BS)
- 14.5 Testing the Performance of CPF and CPF with BS
- 15 CONCLUSIONS AND FUTURE DIRECTIONS page
- ACRONYMS page
- REFERENCES page
- INDEX page

<<无线传感器网络同步技术>>

编辑推荐

SynchronizatiOn in Wireless Sensor Networks - Wireless sensor networks have a huge number and range of applications.and criticalto their deployment is the process of synchronization presented in this book.

- The most important clock synchronization protocols are summarized.with emphasis on design and optimization techniques for building efficient clock offset estimation schemes and performance benchmarks.

<<无线传感器网络同步技术>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>