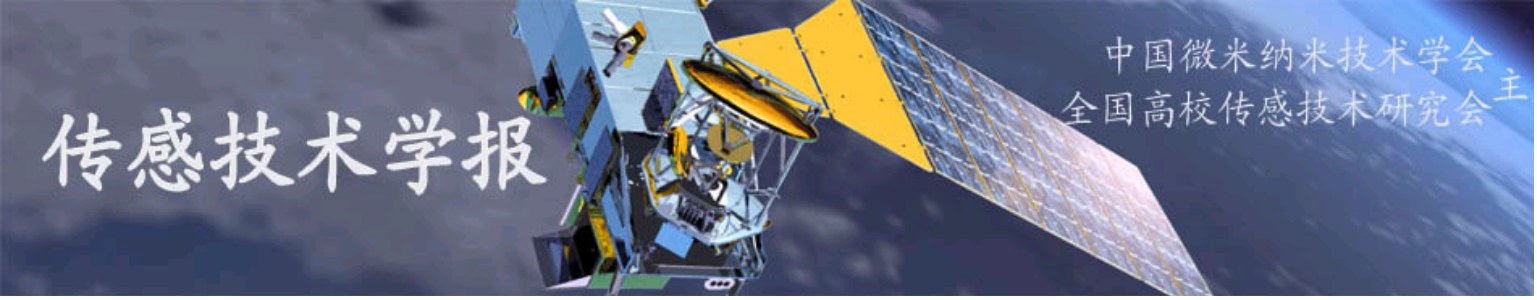

一种基于EPA标准的无线调度算法

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摘　要：

根据工业现场不同数据具有不同实时性要求的特点，本文在EPA有线调度算法的基础上提出了一种基于TDMA的无线调度算法。该算法根据不同的实时性要求个通信宏周期分为周期报文传输阶段和非周期报文传输阶段。在周期报文传输阶段，每个设备都被分配了时间片用于传输数据实时性要求比较高的数据，在非报文传输阶段，网关设备按照非周期报文的不同优先级为各设备分配时间片，该算法同时保证了通信的确定性和实时性。本文还提出了一种该算法通信宏周期期报文传输阶段长度和非周期报文传输阶段长度的确定方法。通过树型网络进行测试，结果表明该调度算法具有较低的丢包率。

关键词：无线调度算法；EPA；TDMA；通信宏周期确定

A EPA-based Wireless Scheduling Algorithm

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Abstract:

For the feature that different data have different real-time requirements in the industrial field, a TDMA-based scheduling algorithm is proposed. The scheduling algorithm proposed based on the EPA wired scheduling algorithm and in the scheduling algorithm a Communication Macro Cycle is divided into two phases, periodic packet transferring phase and non-periodic packet transferring phase .In the periodic packet transferring phase , each device is allocated a time slot to transfer data with the high priority .In the non-periodic packet transferring phase , the gateway device allocates time slot to each device according to their priority. The scheduling algorithm has bo determinacy and real-time .A algorithm is also proposed to calculate the Communication Macro Cycle , the time of periodic packet transferring and non-periodic packet transferring phase .Testing through tree network shows that the scheduling algorithm achieves low packetloss rate.

Keywords: wireless scheduling algorithm; EPA ;TDMA; calculation of Communication Macro Cycle

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