How to Authenticate Legacy IoT Devices Without SIM Cards in 5G Networks Using Federated Identity

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Auctions are mechanisms that formalise the rules with which automated trading schemes can be conducted, and in this paper we model the interaction of bidder and seller agents in sequential computerised auctions. We study the outcome of strategies that a designated "special bidder" (SB) may follow in the presence of a collection of other bidders in an English auction, under the assumption that the SB can make bids based on its observation of the ongoing auction as a collective system. In our model, bidding and sale events are continuous time random processes with discrete state-space, where the state-space represents the current value of the most recent bid. We obtain analytical solutions which allow the evaluation of measures of interest to the SB such as the probability of winning, the savings with respect to the maximum payable price in the event of a win, and the expected waiting time to win. We examine the effects of the SB's time to bid, and study how its decisions may be selected so as to optimise the SB's measures of interest.

Keywords: Automated Auctions; Analytical Models; Autonomic Systems; Internet Technologies; E-Commerce; Queueing Systems

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