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**Using Timed Automata for Modeling Distributed Systems with Clocks: Challenges and Solutions**

**Abstract:**

The application of model checking for the formal verification of distributed embedded systems requires the adoption of techniques for realistically modeling the temporal behavior of such systems. This paper discusses how to model with timed automata the different types of relationships that may be found among the computer clocks of a distributed system, namely, ideal clocks, drifting clocks, and synchronized clocks. For each kind of relationship, a suitable modeling pattern is thoroughly described and formally verified.