

# Abstract

*Air traffic control system in airports is one of the most complex systems due to the huge number of requirements in the framework of air traffic management. The incessant increase in air traffic over the past few decades, so it is more challenging for ATC System to manage flow of the aircraft using one runway. To organize and expedite the flow of air traffic, we proposed formal model of ATC using two runways by Hierarchical timed Color Petri Net. HTCPN is appropriate to present complex reactive system. ATC assign landing and taking over runways according to the first-come-first-served (FCFS) approach. CPN tool is used for simulation and analysis of proposed model. Space state analysis is performed to check the behavior of model like boundness, liveness and dead lock properties etc. Performance analysis is conducted to check accuracy of model.*