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SIMULATION STUDY OF PUBLIC TRANSPORT VEHICLE AT VARIOUS ROUTES USING SINGLE SERVER M/M/I QUEUE MODEL

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Abstract: In this paper we examined the simulation study of public road transport vehicle at various route from Atal Indore City Transport Services Limited (AICTSL) bus stop, Indore to different four places by considering each route as a single server queueing (M/M/I) model and determines performance measures arrivals, queue length and service of passengers by analytical technique and Monte Carlo simulation technique. We know arrivals of passengers are at random, which may produce long queues and bottlenecks. With the help of simulation study we evaluate whether the public transport was overloaded and which route is overloaded with queuing of passengers during its operations. On the basis of obtained results we conclude that which route requires more public transport (bus) facility without the need for long queuing. We use MATLAB software for plotting the performance figure. With utilizing queuing theory, the paper strives to compare arrival and service rates, an indicator of service level, of different routes over the regular buses. The work is established based upon queuing theory formulas and data collected from the AICTSL office. On the basis of this analysis the study of arrival rate, queue length and service rate is helpful in making decision in improvement of the current scenario.

Keywords: Queueing theory, Arrival Rate, Queue Length, Service Rate, Simulation.

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