Cairo University-Faculty of Engineering

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Network Communication Simulation Project

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1-System Design : Here's a flow chart of the system of RTOS Communicating Tasks S&W

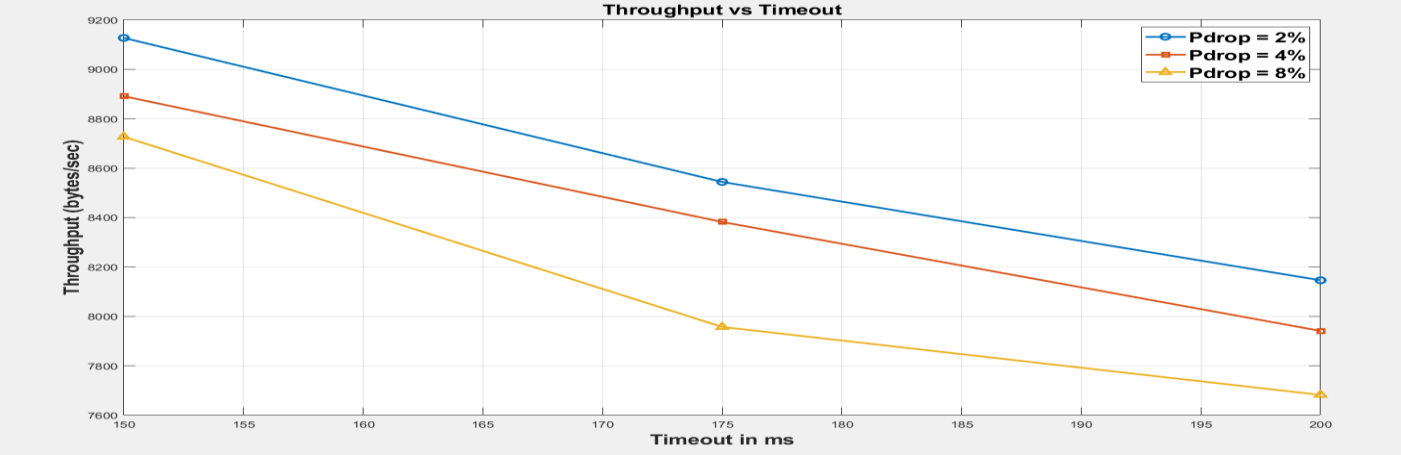
Results and Discussion : 1-Troughput_values

Expected the Throughput become Less with increase in Pdrop& Tout

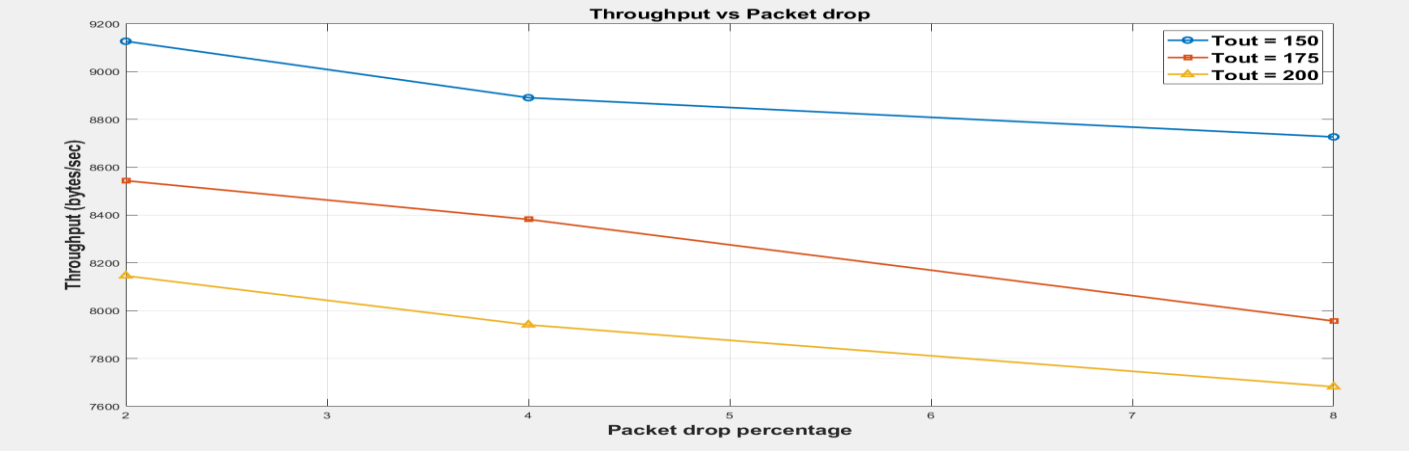
TOUT || P_DROP	2%	4%	8%
150	9127	8891	8727
175	8544	8382	7957
200	8146	7941	7682

1.1-Plot the throughput

1-as a function of P_drop for different values of timeout period Tout



2-as a function of Tout for different values of P_drop



2) average number of transmissions of a packet as function _of Pdrob

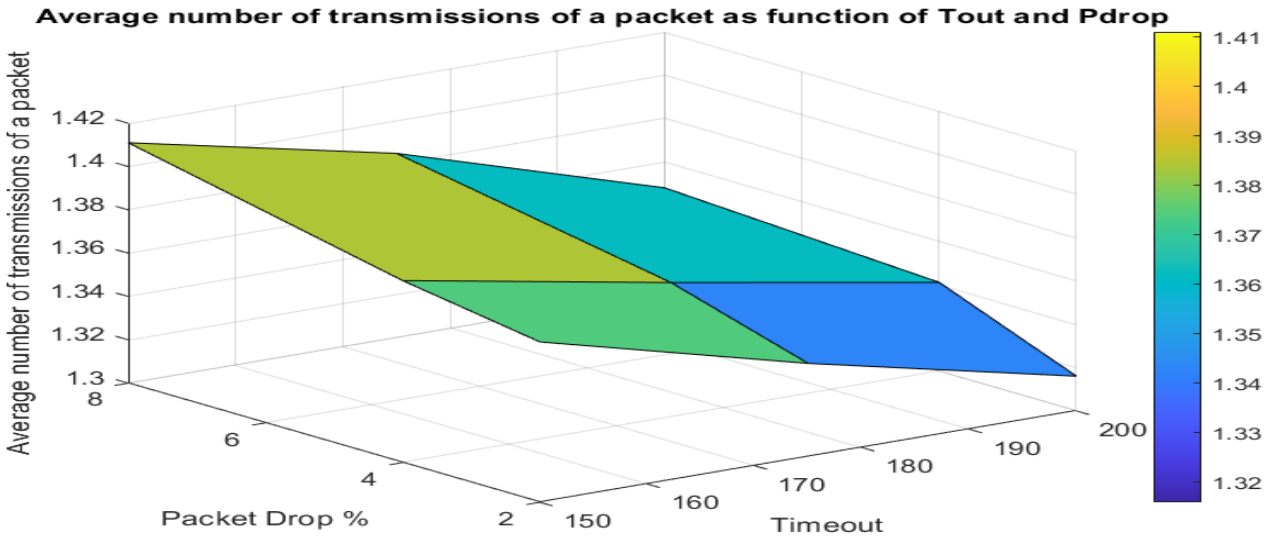
TOUT || P_DROP	2%	4%	8%
150	1.374	1.382	1.411
175	1.343	1.362	1.385
200	1.316	1.341	1.348

1. **As drop % increases, average transmissions per packet increase**
2. **As TOUT increases, retransmissions become slower, possibly lowering retries but increasing delay**

3)Total_packets were dropped due to being transmitted more than 4 times.

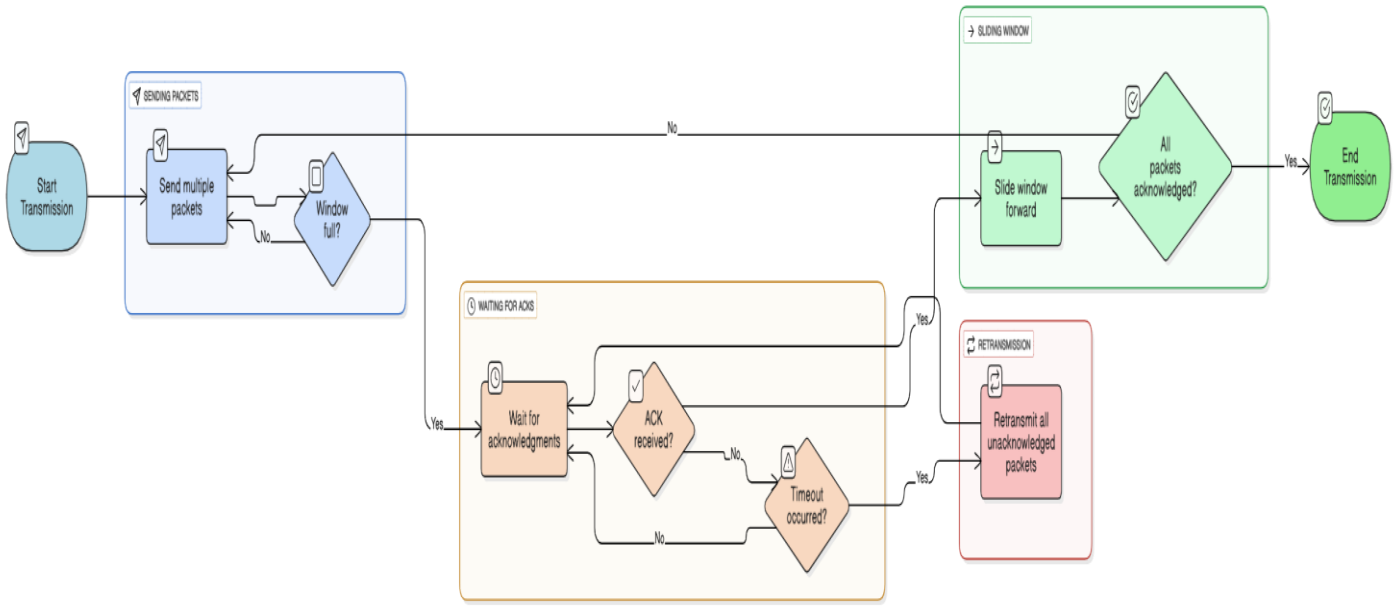
TOUT || P_DROP	2%	4%	8%
150	234	220	237
175	233	229	238
200	229	224	227

4) 3D_distribution_of_average number of transmissions



Implementation Of GBN System

1-System Design: GBN and S&W have similar flowcharts, but S&W sends one packet at a time, while Go-Back-N sends multiple before ACKs. So, the Different Part of Flow Sending and Acks Handling



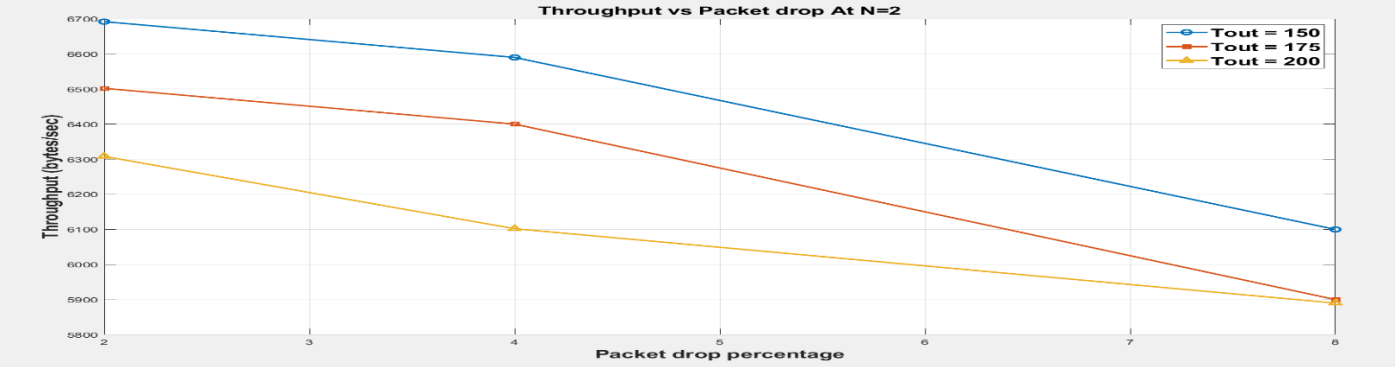
Different Part OF Flow For GBN THAT HAVE WINDOW SIZE N

2-Results and Discussion : 1-Troughput_values

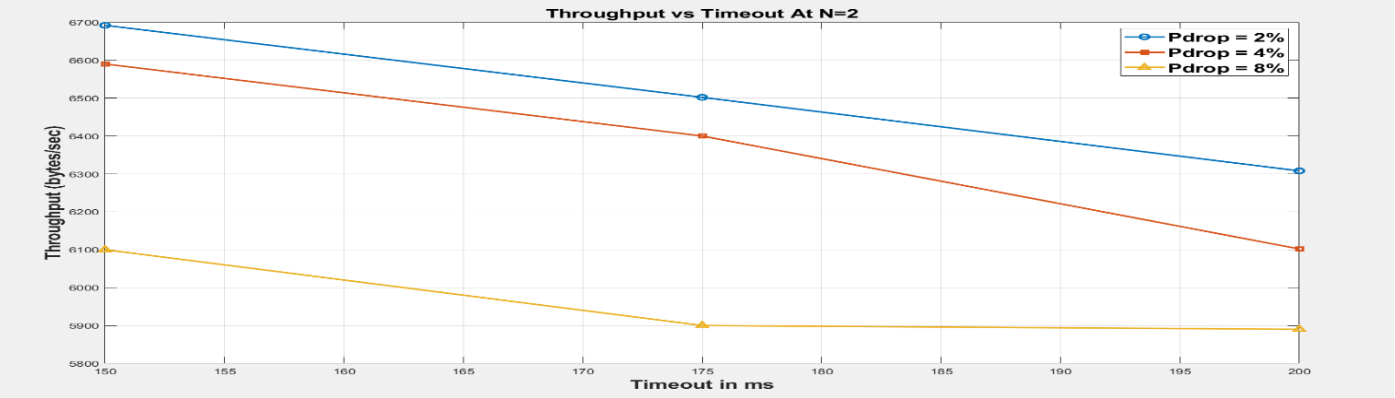
WINDOW SIZE	N = 2			N= 4			N=8		
TOUT || P_DROP	2%	4%	8%	2%	4%	8%	2%	4%	8%
150	6692	6590	6103	10275	9549	8570	11757	11599	10340
175	6502	6407	5907	9226	8911	8181	8944	8974	7802
200	6308	6102	5894	8308	8166	7529	8526	8394	7416

- Larger window size → more packets sent before waiting for ACKs
- Better bandwidth utilization so Throughput increases
- Expected the Throughput become Less with increase in Pdrop& Tout

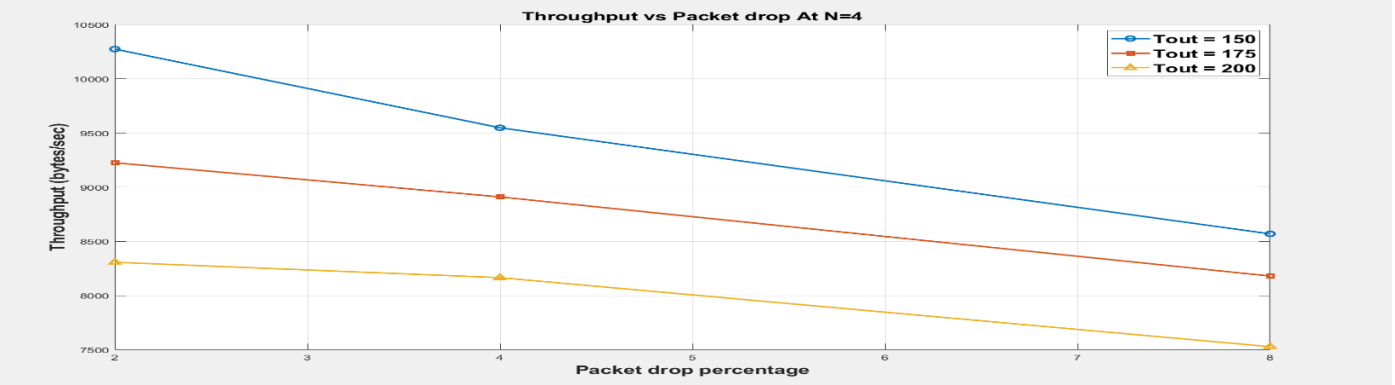
1- throughput as a function of P_drop for different values of timeout period Tout (N=2)



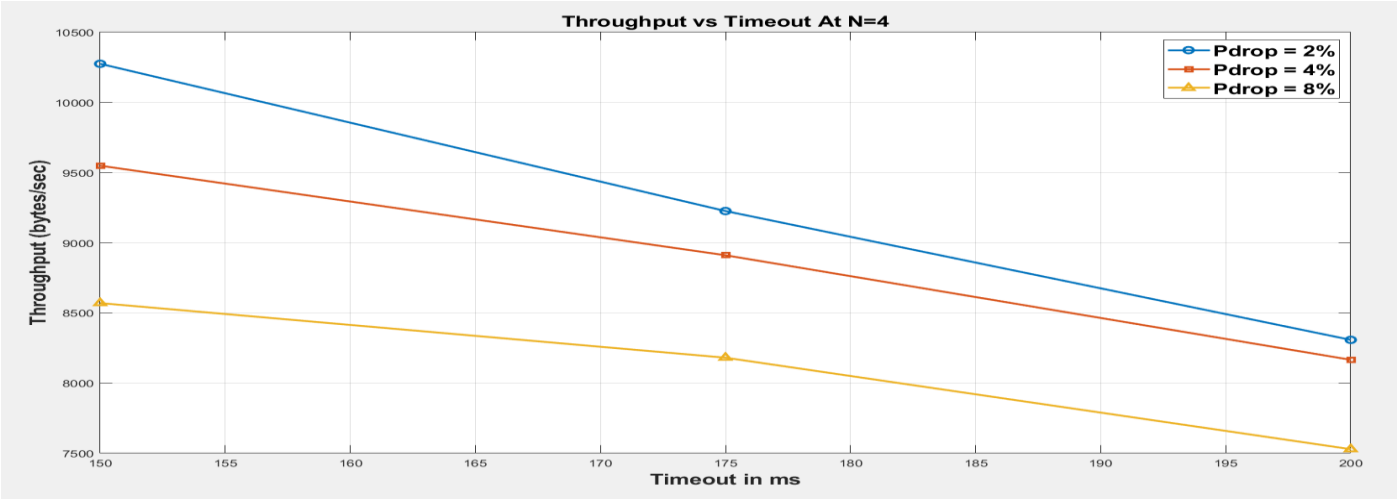
2- throughput as a function of Tout for different values of P_drop (N=2)



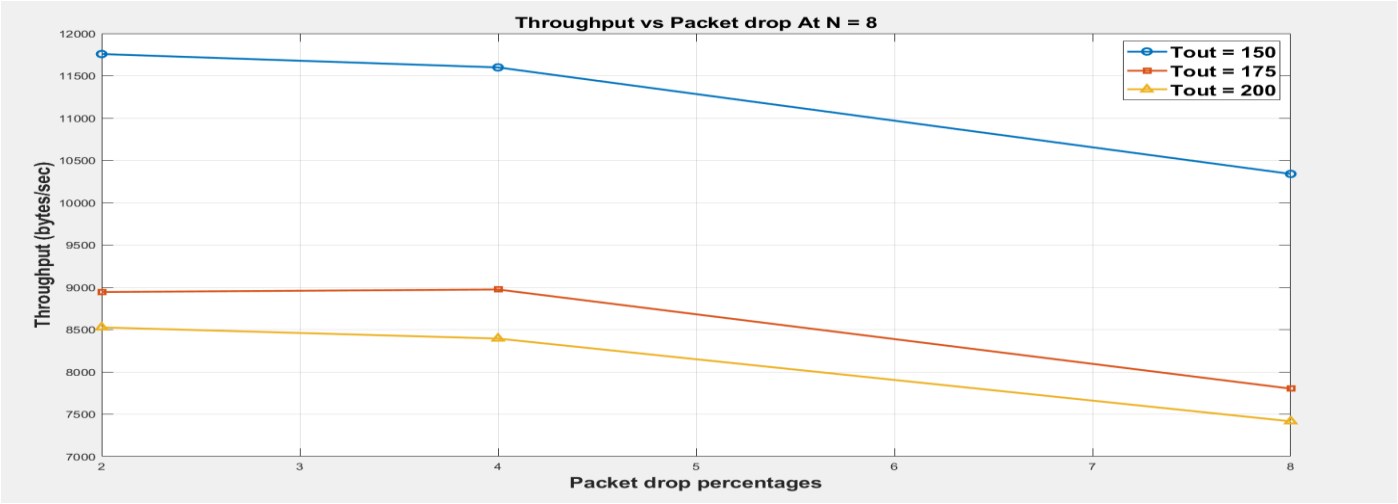
1- throughput as a function of P_drop for different values of timeout period Tout (N =4)



2- throughput as a function of Tout for different values of P_drop (N=4)



1- throughput as a function of P_drop for different values of timeout period Tout (N=8)



2- throughput as a function of Tout for different values of P_drop (N=8)