Modelling and Simulation

HW#5 Report

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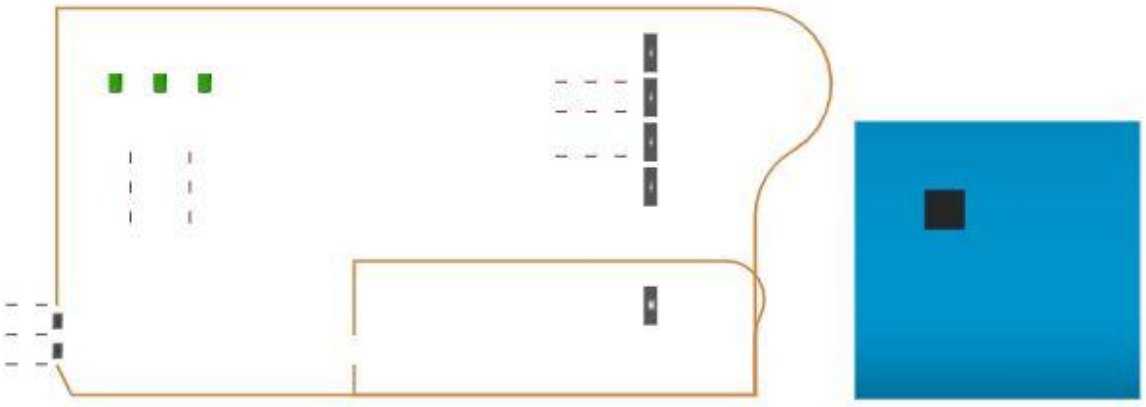
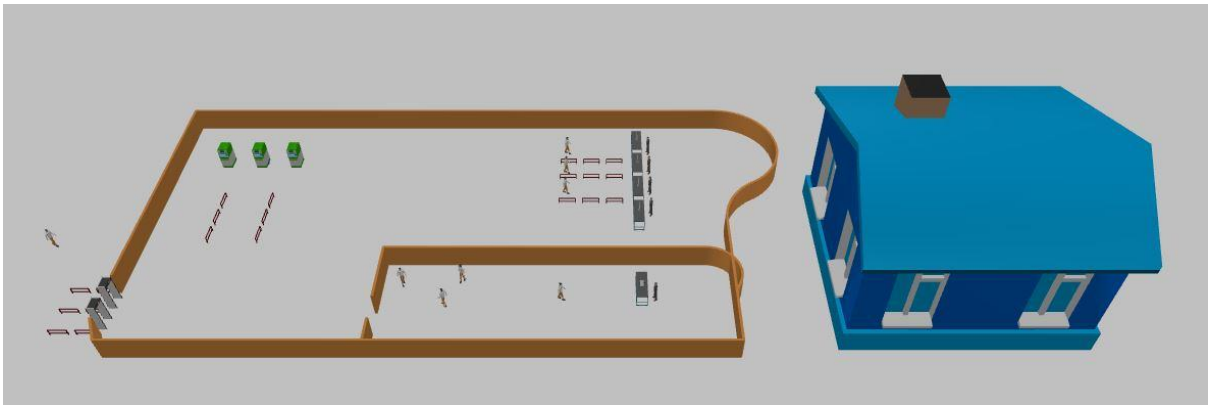
1. First of all, we have 2 custom distribution sets for ATM and Teller services. SpecialCaseService has the triangular function implemented.
2. **System Components:**
   - 2.1. Agents
   - 2.2. Queues
   - 2.3. Schedules
   - 2.4. Resources
   - 2.5. Resource Pools
   - 2.6. Exits
   - 2.7. Decision Blocks
   - 2.8. Delays
   - 2.9. Seize Blocks
   - 2.10. Release Blocks
   - 2.11. Time Measurement Blocks
   - 2.12. Custom Distributions
3. **Relations:**
   - 3.1. We have a queue for every service offered.
   - 3.2. Every agent has its own schedule set.
   - 3.3. We have 2 exits in order to count customers who timeout.
   - 3.4. Customers, Tellers, ATMs are our agents.
   - 3.5. ATM service, Teller Service, Special Case Service are being offered.
   - 3.6. ATMs, Tellers, specialCaseTellers have ResourcePools which provide services being offered.
   - 3.7. Time spent in queues is being measured via time measurement components.
   - 3.8. Customers who wait too long in queues and hence those who leave the bank are measured via time measurement components.
   - 3.9. Time spent in the bank is being measured via time measurement components.
   - 3.10. Since our system is a Bank every agent in our system is set via Schedules.ServicePools work between 9am-17pm.Giving a break at noon. Customers are allowed to enter the system between 9am-16.45pm.
4. **View of 2D Model**



5. View of 3D Model



6. Added Age parameter to customer who enters the system.
7. We have histograms and a bar chart to display our measured variables.
8. **Generation Of Random Variates**
    - 8.1. We have custom distributions function for atmServiceDistribution and TellerServiceDistribution
    - 8.2. Triangular function is used to calculate sCaseTellerService delay time.
    - 8.3. Customer age is also being set via custom distribution.
9. Input Parameters
    - 9.1. Every custom distribution, decide block, and triangular function is an input to the system.
10. Our input parameters are discrete value integers and continuous value distributions only.
11. Average time currently spent in our system is 7minutes per customer and queue delays are below 1minute mark.We will be taking system metrics in the upcoming part of the project with various parameters.
12.