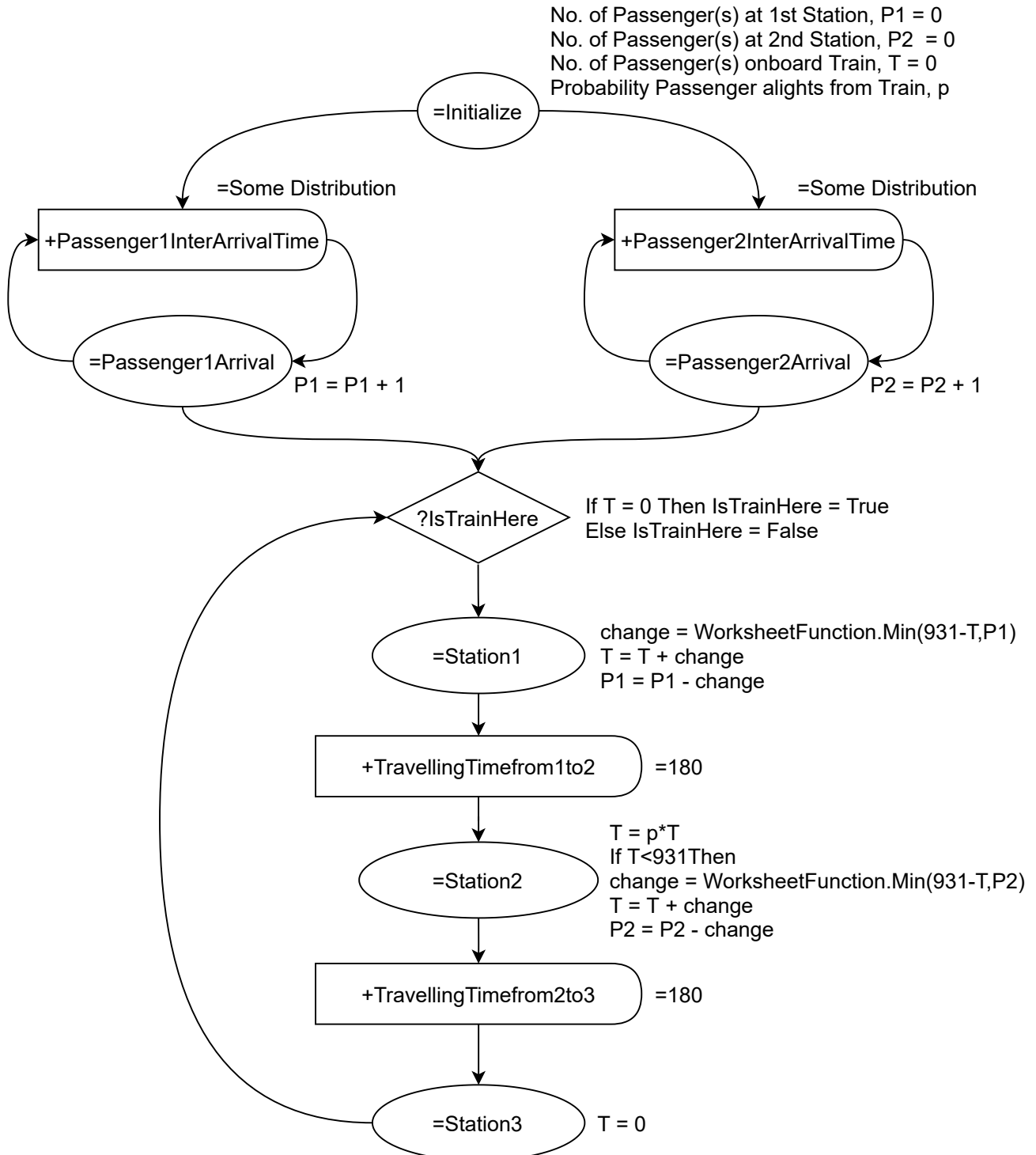# Simplified MRT Event Diagram

Event diagram for the simulation of a simplified MRT system in Singapore that explains the logic behind the train.

Model Assumptions:

- 3 Stations. Passengers board from the 1st station and 2nd station, assume the same distribution;
- Passengers alight from the 2nd station and all alight at 3rd station
- Travelling time between stations constant at 180 seconds;
- One way direction, a train arrives only after one train completes a journey;
- The maximum capacity of Train is 931.

No. of Passenger(s) at 1st Station, P1 = 0
No. of Passenger(s) at 2nd Station, P2 = 0
No. of Passenger(s) onboard Train, T = 0
Probability Passenger alights from Train, p

=Initialize

=Some Distribution

=Some Distribution

+Passenger1InterArrivalTime

+Passenger2InterArrivalTime

=Passenger1Arrival   P1 = P1 + 1

=Passenger2Arrival   P2 = P2 + 1

?IsTrainHere

If T = 0 Then IsTrainHere = True
Else IsTrainHere = False

=Station1

change = WorksheetFunction.Min(931-T,P1)
T = T + change
P1 = P1 - change

+TravellingTimefrom1to2   =180

=Station2

T = p*T
If T<931Then
change = WorksheetFunction.Min(931-T,P2)
T = T + change
P2 = P2 - change

+TravellingTimefrom2to3   =180

=Station3   T = 0

Schematic of JaamSim MRT Model using Event Diagram

An outline of the schematic that would be used for our JaamSim Model using an Event Diagram. Note the final JaamSim model might differ, this is just a starting point to build upon.

Adding more middle stations would simply mean a copy of this shapes.

```
=Initialize

+PassengerInterArrivalTime          +TrainInterArrivalTime          +PassengerInterArrivalTime

=PassengerArrivalStation1           =TrainStartJourney              =PassengerArrivalStation2

?TrainArrivedAtStation1             +TravellingTimefromDepotto2     ?TrainArrivedAtStation2

                                    =Station1

                                    +TravellingTimefromStation1to2

                                                                    =Station2

                                                                    +TravellingTimefromStation2to3

                                                                                        =Station3
```