Contents

1 Problem description

The bus connection between the Uithof and Urtecht Central is the most traveled connection in utrecht. Each day thousends of people travel this route creating a continues stream of people that the busses need to transport.

1.1 Problem

A bus connection is not the most efficient way of connecting the Uithof to Utrecht Central. Maintaining and opperating those busses are a major expence. The scope of the connection makes it profitable to invest in more efficient ways of transport.

1.2 description

2 Assumptions

Personel is never sick.

3 Problem analysis

Too many people

4 Model explanation

4.1 Events and event handlers
4.2 Preformance measures
4.3 State

5 Input analysis

5.1 Modeling of input data from the given data files
5.2 Choise and motivation for applied probability distrobutions

6 Experiments with realistic model: set up and results

7 Results from the artificial input model

8 Conclusion

9 Appendix

Information gained during the interview.

Each tram has two carriges each having a capacity of 210 people.

The average dwell time in seconds of a tram is calculated by the following formula:

$$\{d = 12,5 + 0,22peopleIn + 0.13peopleOut\}. \quad (1)$$

An alternative model is:

$$\{d = (2.3 * 10^{-}5) * (peopleTransfer^2) * (peopleIn + peopleOut)\}. \quad (2)$$

If a tram is occupying a station all trams traveling to that station have to wait.

Waiting times are generated using the Gama's distrobution.

Trams at head stations have a turnaround time of 40 sec. All other trams at that station will have to wait for the turning tram.

The minimum departure times between trams leaving the same station is 40 sec.

Turning a tram around takes 3 min.

In the morning it is expected that each station gets visited by 4 trams a hour. Later that day this number will be increased to 16 per hour.

Trams park at P&R