Transportation System Part 1

Sherida van den Bent, Pim Dijt, Daniel Maaskant (Group 12)
10428461, 11168056, 10326170

February 18, 2018

0.1 Schedule

For this part of the assignment we implemented a fixed driving schedule for the buses in Amsterdam based on the current schedule of the GVB. At first we mapped the GVB schedule to the bus stops in the simulation environment. This resulted in a partial schedule shown in figure 1.

This schedule is the basis for the final version. For the final version the unconnected bus stops were added to the graph by either expanding current bus routes or adding a new bus route. New routes were needed in the city center, because the GVB uses trams instead of buses there. The final schedule is shown in figure 2.

0.2 Picking up passengers

A boolean is introduced which will be set to true when a route has been found to stop the search. First, we will pick up passengers if their destination is within the route of the bus currently at the stop. If that is not the case, we check if there is no bus route with the current stop in its schedule that does have the destination in its schedule, because then we would let that bus pick up the passenger. Next, we check whether the destination is in the schedule of a bus which the current bus connects to, in order to plan a transfer. The transfer is then added to the list of transfers of the bus and the passenger is picked up. Lastly, the connections are dense enough that a maximum of 2 transfers may be necessary, therefore the last check consists of checking if the destination is in the schedule of a bus that connects to another bus, which in turn connects to the current bus. This guarantees that every passenger will be picked up eventually.

0.3 Dropping off passengers

The bus checks all its passengers and their destinations to find whether the current stop is their destination and if so, drops them off. If not, then it will check if the current stop is their transfer destination and drop them off. If this is the case, the transfer will be deleted from the list of transfers of the bus.
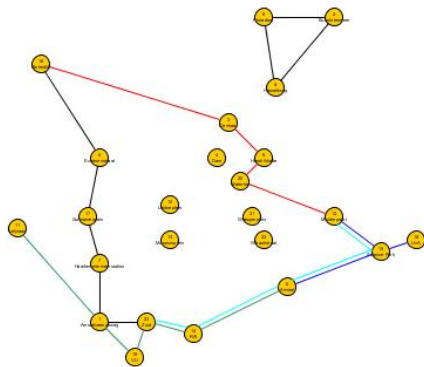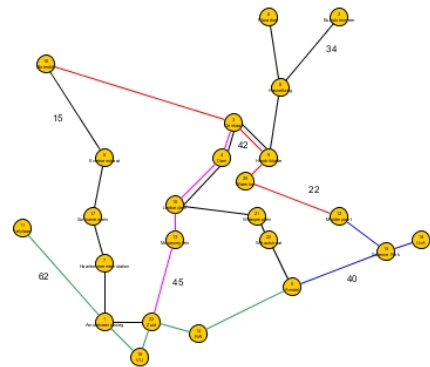

Figure 1: GVB schedule mapped to simulation bus stops

Figure 2: GVB schedule altered to fit simulation stops