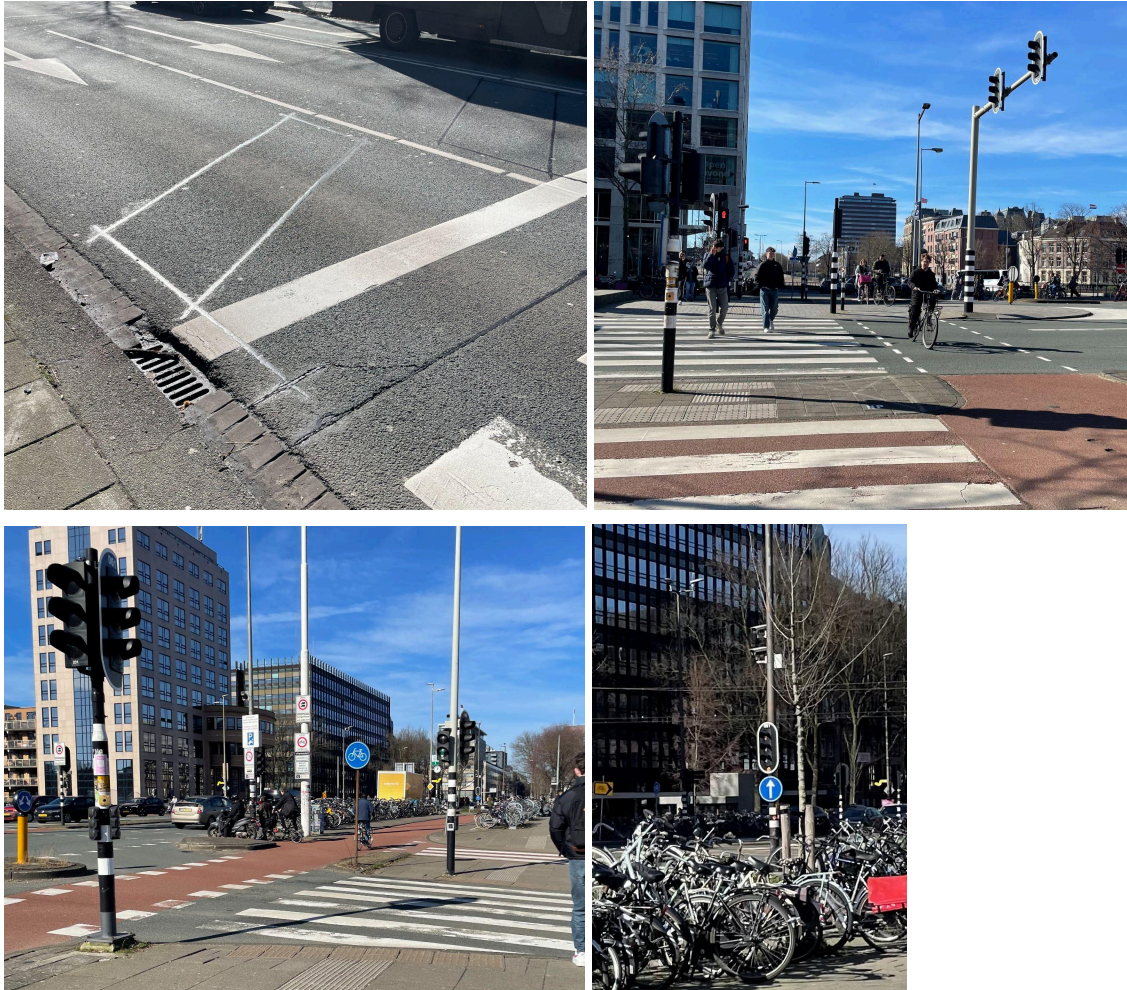


Digital Urban Systems

System 1

Smart traffic lights and camera's



Function

The traffic light system regulates traffic flow at intersections using digital sensors and cameras. The system detects the presence and amount of road users such as cars, cyclists, and pedestrians and adjusts signal timing automatically to improve safety and reduce congestion.

Input

Sensors or traffic cameras:

- Number of cars
- Cyclists waiting
- Pedestrians pressing buttons
- Traffic density and waiting time

Output

- Traffic lights switching between red, orange, and green
- Adjusting waiting times for each road user
- Priority given to busier traffic directions

Feedback

The system continuously monitors traffic conditions and adapts its behavior.

- More cyclists or cars accumulate at an intersection
 - Sensors detect congestion
 - Green light duration increases
 - Traffic clears
 - Congestion decreases

Type of Feedback: Balanced Feedback

The system works to stabilize traffic flow. When congestion increases, the system responds to reduce it. The goal is equilibrium rather than growth, which makes it a balanced feedback system.

System 2

Public transport



Function

Train doors contain safety sensors that detect objects or passengers in the doorway. The system prevents doors from closing when someone is entering or exiting, ensuring passenger safety and smooth boarding.

Input

- Motion sensors near the bottom of the door
- Detection of obstacles or passengers
- Door position data

Output

- Door remains open
- Door reopening if obstruction detected
- Closing/warning sound stops

Feedback

The system constantly checks whether the doorway is clear.

- Passenger detected in doorway
 - Sensor sends signal
 - Door stops or reopens
 - Passenger clears doorway
 - Door closes safely

Type of Feedback: Balanced Feedback

The system corrects unsafe situations by preventing closure until conditions are safe. It maintains stability and safety rather than amplifying behavior, making it balanced feedback.