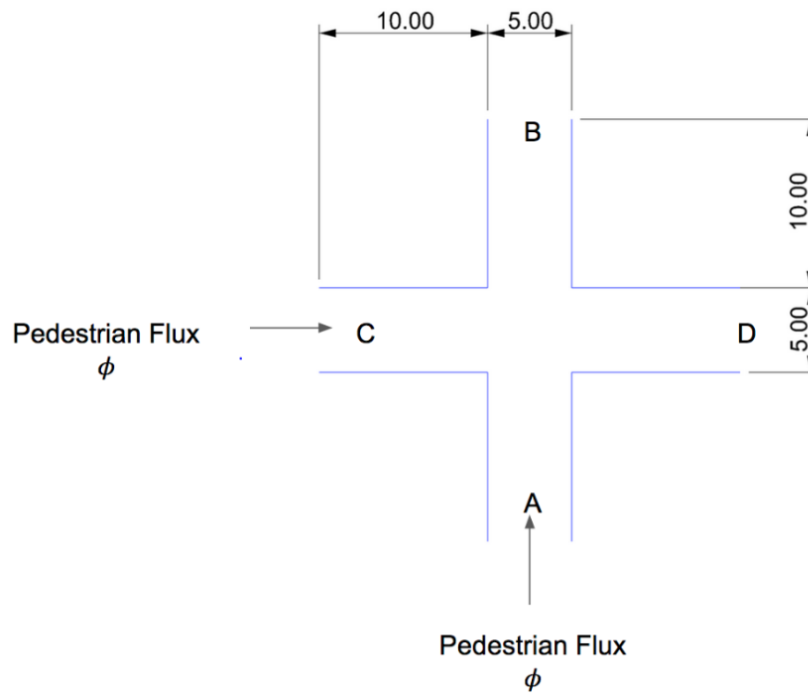


Phantasma Simulation Challenge

For the task, please use a programming language of your choice. Make sure that your code is documented and provide instructions for the running setup. Please provide a link to a repository from which we can pull the results.

Description: The geometry below represents two intersecting corridors with walls. Pedestrians with a constant flux ϕ enter the corridor from the bottom (region A) and left (region C). The pedestrians entering from region A leave the corridor at region B and the pedestrians entering from region C leave the corridor at region D. All dimensions are in meters.



Task: Set up a solver in your desired programming environment for simulating the pedestrian flow. Representation of individual pedestrians in simulation is necessary. Perform the simulation with at least four different pedestrian flux values in the range $\phi = 0.2 - 2$ pedestrians/second.

For the representation of the pedestrians, assume that:

- they have a circular cross-section with radius $r=0.25\text{m}$
- they have a desired velocity in the range of 1.1-1.3 m/sec
- their maximum acceleration is 2 m/sec²

Integrate the motion of the pedestrians using a timestep of your choice for 60 sec, taking into account the desired target path/exit and velocity, as well as the avoidance of other pedestrians.

Represent the results with a simple visualization setup of our choice. Make suitable assumptions wherever necessary.

Deliverables: Code via a repository link (such as GitHub), basic plots for different pedestrian fluxes, a short description of the model.