

# Social Force Model Mini-Project Brief

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## Aims and Objectives

To create various arrangements of targets, obstacles and walls and investigate pedestrian behaviour. For example you could investigate the evacuation of pedestrians from an enclosure – how does the time for evacuation depend on things like – pedestrian desired velocity, the size of the exit(s), obstacles in the enclosure. Here's more ideas.

## Some Ideas

- Investigate the effect of parameters (for a single map).
  - For pedestrian interaction with obstacles, investigate the parameters **A** and **B**.
  - Same for pedestrian-pedestrian interactions.
  - Walls have their own parameters **A** and **B**. What is the effect of changing these?
- Investigate various layouts of targets, obstacles, walls and pedestrians.
  - Pedestrians moving through a gap in a wall.
  - Or moving through several gaps.
  - Pedestrians moving through a 'field' of obstacles.
    - Regular arrangement of obstacles.
    - Irregular arrangement.
- Investigate the effect of the number of pedestrians. This can be applied to any scenario. There are a couple of interesting questions here.
  - Is there any fundamentally different behaviour when the number of pedestrians increases?
  - Can my Unreal code cope with a huge number of pedestrians? In other words, *Does it Scale?*
- Try to replicate some results from the literature (see below)

## Background – Investigations from the Literature

- Faster pedestrian speeds often mean a longer evacuation time.
- Obstacle in front of an exit can improve evacuation time.
- Widening of a corridor increases evacuation time.



- Collisions between crowds

