**Problem formulation**

The problem that has been chosen to solve is that of a basic traffic light system. The traffic light system will replicate the function of a pedestrian crossing, where a green, a yellow and a red light indicate that a car can continue, prepare to stop if it is safe to do so, and stop in the same manner as a normal set of traffic lights. An input to this system will allow the flow of events to turn from green light to red, where a pedestrian can safely cross, then back to green after a fixed period of time.