CS745/ECE725 Fall 2013
Homework 4 (UPPAAL)

Consider a one-lane turn-based bridge where cars can travel in only one direction at any time. The bridge is controlled by two traffic signals as follows. When a signal turns green, it turns yellow within 1 and 10 time units. Subsequently, the signal may turn red between 1 and 2 time units after it turns yellow. Finally, when a signal is red, the other may turn green within 1 time unit. Both signals operate identically.

Develop a model in UPPAAL for two timed automata that model the behavior of the traffic signals. Use synchronization to ensure that the two automata can communicate appropriately. Verify the following properties:

- For all execution paths, it is always the case that at least one signal is red.
- The system never deadlocks
- When a signal turns red, it will turn green within at most 14 time units
- When a signal turns red, it will turn green not earlier thatn 2 time units

Deliverable. You are expected to submit a UPPAAL .xml and .q files through email by **11:59am on Tuesday December 10**.