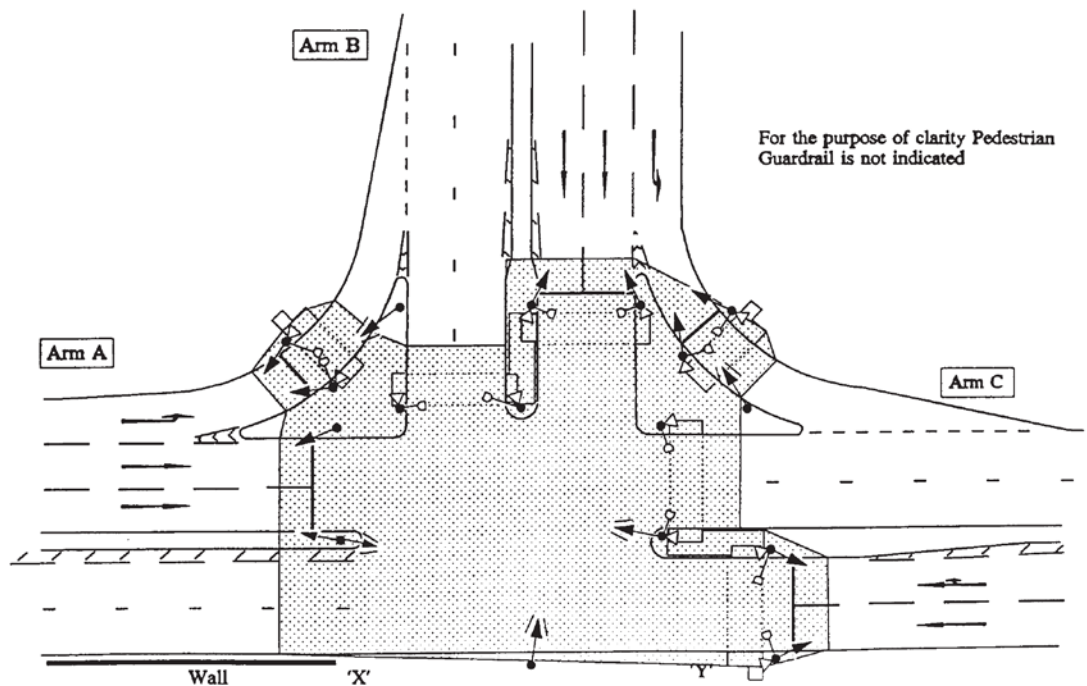

14ELB014 Software Engineering

UML Coursework Task

Task

Working in pairs design a control system for a traffic lit road junction. The basic layout is as shown in <http://www.dft.gov.uk/ha/standards/dmrb/vol6/section2/td5004.pdf> page 30.



<http://www.dft.gov.uk/ha/standards/dmrb/vol6/section2/td5004.pdf>

The document referred to identifies certain constraints associated with the junction in section 5.8

Traffic sensors in each lane will indicate to the system that a vehicle is present at the lights. Each left turn has filter lights. Arm A does not have pedestrian crossings – arms B and C do. When traffic is quiet, the lights should wait on red until a vehicle triggers a sensor and then turn the appropriate lights green to allow it to pass. Otherwise the lights should cycle for 30 seconds of green, or 15 seconds if the light is a filter. In this case the filters will operate together to allow right turns in both directions.

There are pelican crossings across all lanes of arms B and C at the same position as the lights (as shown in the picture). A push button activates a wait signal for pedestrians on the button control. Green and red 'Walk'/'Don't walk' signals are fitted to the appropriate light columns. Two of the pedestrian crossings are split at the mid-point of the road and for the filter lanes. Fit appropriate 'safe' crossing periods into the normal sequence of the junction.

Use use cases and associated descriptions to fully describe the operation of the system. Build up a class diagram using aggregation and other associations to model the traffic light columns. A structured context diagram or deployment diagram will show the overall interconnection of the system, and sequence diagrams will help describe the timing aspects. Use other UML diagrams as appropriate

Marks – 50% of module

Deadline Midnight Friday of Week 9 – 1 May 2015

Deliverables

Supply a brief report describing how the system is intended to function, the approach taken for your design and any improvements you propose. Also include any UML diagrams you have used. Where supplementary information – e.g. use case descriptions – have been included in your design make sure these have also been included in your report. There is no page limit, but aim for a maximum of five pages plus UML diagrams

Submission

Online submission via the LEARN server of the report as a single pdf file.