1) Derive the state diagram for Vali-Asr and Taleghani cross-section. Consider emergency vehicles (with an external interrupt), and adjust the traffic light for them. Green, red, and amber lights all should be designed.
2) Implement the derived state diagram.

Notes:

- Everything should be the same as what really happens in the cross-section.
- In order to implement the emergency state, use an external interrupt and a push button. When the button is pressed, the state of all lights should be saved, all green lights should immediately go amber and then red. When all lights are red, emergency light would turn on. After 3 seconds the emergency state is done and everything goes back to its previous state.
- So, in addition to the real traffic lights in the cross-section, you would have an LED to indicate the emergency state.
- Consider 4 seconds for each green light, and 2 seconds for each amber one.
- Both the implementation and the state diagram have points and will be evaluated. Therefore, draw the state diagram and upload it to the Courses before the deadline.
- You do not need to provide a report for this project.

Deadline: Dey 4th, 23:55

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