Microcontroller Lab

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Task 5

- Develop an interface for the traffic light systems (TLS) of your team (to your teammates)
  - The coordination between the traffic lights should consider at least two different traffic light systems
    - Nevertheless, the coordination should be realized in a way that the traffic lights can be exchanged
    - Example: you are 3 teammates (A, B, C) with three different TLS
      - The following coordination should be possible:
        - A with B
        - A with C
        - B with C
- First, update your state machine model
  - The interface can be represented by an appropriate event (e.g. signalizing switching to a specific state (e.g. redStateEvent) of (two) different state machines
- Run the TLS in parallel (You have different possibilities)
  - E.g. via different Arduino instances that connected via an appropriate serial interface (UART, I2C, …)
  - Via a network connection (TCP/UDP) via a standard C/C++ implementation
- Update your code accordingly

Presentation

- Presentation of your results in the week starting from January 10 to January 14
  - During our lab session
  - Each team has max 15 minutes – all members have the same presentation time
    - Focus on your engineering! (from idea to model to code to simulation)
- Upload your personal solution continuously to your git repository (your specific folder)

- Final deadline
  - January 9, eob
  - Group B, C: 12.12.21 eob

Evaluation

Max. 20 points

considered are 3 parts for your solution

- Engineering
  - state machine model (40%)
  - Well defined mapping to code (40%)
  - Running simulation (20%)

And 4 levels

- Correct running traffic (max 4 points)
- Integration of pedestrian light (max 3 points)
- Parallel realization of traffic and pedestrian light (max. 5 points)
- Coordinated TLS (max. 5 points)
- Well defined usage of version control tool (git) (max. 3 points)
  - this includes a continuous update of the engineering progress as well as understandable commits.