Thread: assignment 3: data buffering and locking

Simone Magri 3 months ago

assignment 3: data buffering and locking

Overall Rating:

- Are we restricted to storing the sensor data, from both sensors, into the _one_ buffer or can I use seperate buffers?
- Not sure if I need one mutex lock or two to syncronise the two data buffers as producers and one reader/consumer of the data, any thoughts or guidence? ie one lock for buffer one writer and reader/consumer and another lock for buffer two writer and reader/consumer.

Reply

Alen Alempijevic 3 months ago

RE: assignment 3: data buffering and locking

COLLAPSE

Overall Rating:

1. No restrictions on how to arrange your data. Design choice you need to make, consider what threads need access to date and when, we discussed in class principles of where to have mutexes.

2. This is coupled with your above question, it depends on above implementation, though think in terms of efficiency and delays on threads how best to organise the data to ensure no deadlock and minimum locking time on accessing data.

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Nicolas Giovanangeli 3 months ago

RE: assignment 3: data buffering and locking

Overall Rating:

I think I'm over thinking things so I'm still a little confused on conceptualising the

I think I'm over thinking things so I'm still a little confused on conceptualising the implementation.

- We have our sensors publishing at their respective rates and this data is stored into a single buffer for processing - Are we suppose to be fusing what ever data is in this buffer (every 5Hz or whenever there is new data) or do we make each sensor wait until all sensors have input data (i.e. block sensors that have already input data) into the buffer and fuse that block of data ? This is causing me to get stuck in my approach to how I set up my condition_variable/synchronisation.
- Also is checking overlapping fields of view for fusion still within the scope of this assignment, say if a sensor with multiple sensor readings was present, and how does linear extrapolation come into play with the sensor fusion?

▲ Hide 1 reply

Alen Alempijevic 3 months ago

RE: assignment 3: data buffering and locking

Overall Rating:

Hi Nicolas,

For D/HD user should be able to select either 5Hz or on each piece of data.

The 5Hz rate may not align with each sensor data input.

Consider:

- how many samples you may need from both sensors if the time when your requesting a reading is no t he same as when data has arrived
- extrapolated sensor value still has to obey the max/min sensor range
- Sensors provide only one reading and they overlap
- Dealing with multiple sensors, we anticipate the number is not hardcoded to two sensors and more can be catered for easily (if a 3rd sensor is added provided and connected the fusion could still perform)

Select: All None

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