AuE 823: Autonomy Science and Systems, Spring 2023

Department of Automotive Engineering, Clemson University

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ASSIGNMENT 2A

(Due: Friday, 17th February 2023, 12:59 PM)

TurtleBot3 Burger Teardown:

https://emanual.robotis.com/docs/en/platform/turtlebot3/features/#specifications

The sense-think-act cycle of a robot helps us categorize the onboard hardware with respect to the function it serves in each part of the cycle. Typically, the sense part is associated with the perception sensors, the think part with the on-board compute and the act part with the available actuators.

The task for next assignment would be as follows:

1. To identify the associated hardware – sensors, computers and actuators for TurtleBot3 Burger.
2. Analyze how the quality of Turtlebot3 hardware (fidelity, cost, etc) benchmarks against earlier TurtleBot versions.
3. Identify replacement hardware for existing Turtlebot3 hardware available in market to make the future TurtleBot better.
4. Down select the best combination of hardware that would make it suitable for an educational deployment. Use a decision matrix approach (cost, performance characteristics, fidelity as metrics for comparison).

SUBMISSION:

You will submit a presentation deck (10-12 slides in total) for this assignment. The assignment is due on 17th February 2023.