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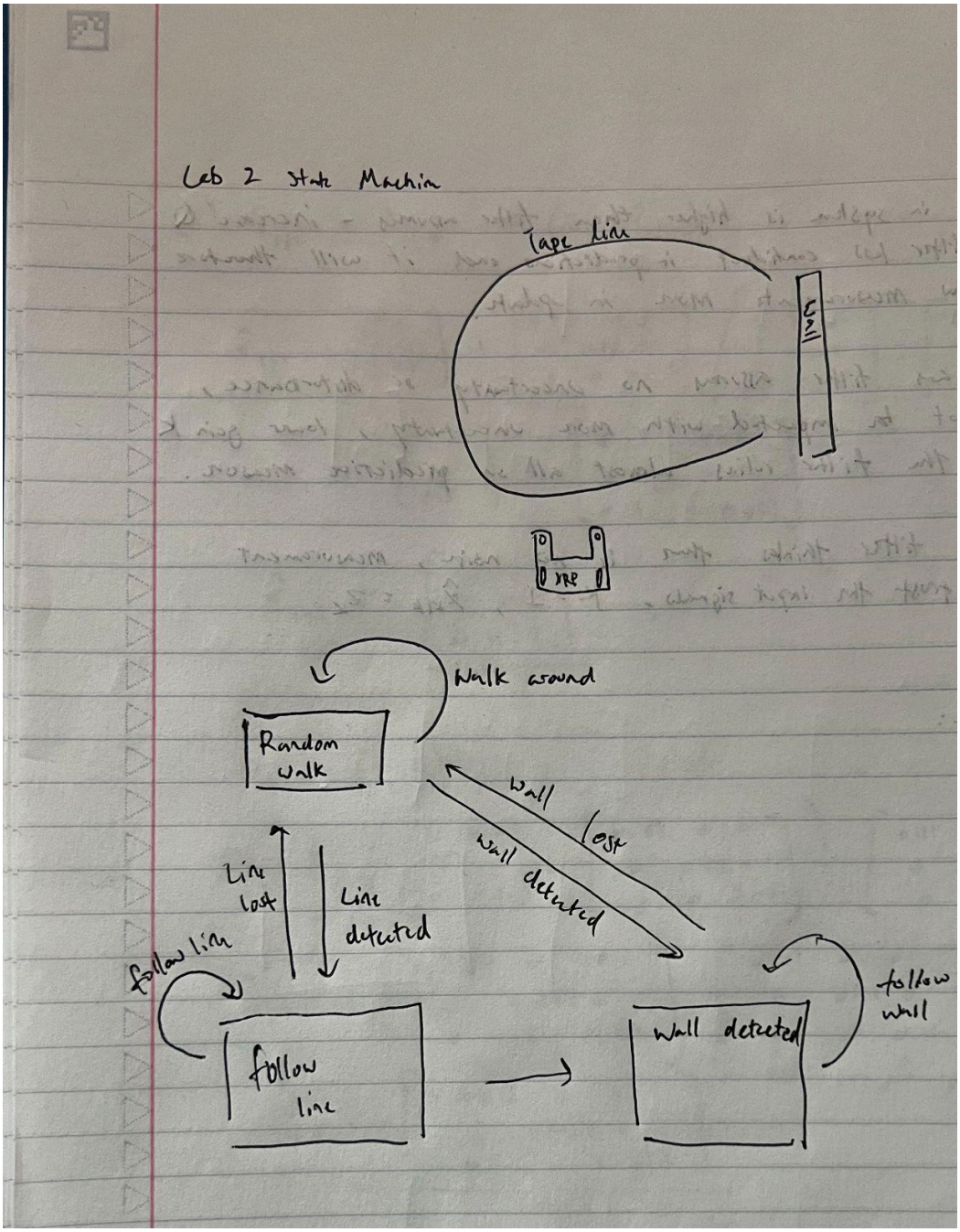
Spring, 2025
ME134 - Prof. Nemitz
Lab 2 Writeup

1. Provide a diagram of the finite state machine implemented in your robot.



2. Indicate which milestones you completed and evaluate the robot's performance for each.
   I got the robot to both follow the wall using the ultrasonic sensor and track a line using the huskylens camera. Both of these actions are incorporated in my state machine, which also includes a random walk function to start the process.

3. Record timestamps for key transitions:
   • Start: 0s
   • Initiating line-following mode: 3s
   • Initiating wall-following mode: 22s
   • Returning to line-following mode: 29s
   • Completing the full loop in line-following mode: Through rest of video

4. Discuss the main challenges encountered during this lab. For resolved issues, explain your solutions. For unresolved issues, suggest potential strategies for improvement.
   It took a while to get the camera hooked up successfully with the xrp. For whatever reason I had a lot of I2C bus issues where the clock line wouldn't work. This took a minute to understand and diagnose the problem and then also make sure the wiring was correct.

Note: Nolop was closed as I was trying to film the video, so I recreated the track with the wall in a classroom. The line isn't quite as big but is still ovular and has a section cut out where the xrp must follow the wall. Also, I repurposed all of the paper used.