

Su22-ENGR-40M-01 Lab 2a

Jannah Sabic El-Rayess

TOTAL POINTS

60 / 60

QUESTION 1

1 Lab Complete 15 / 15

- ✓ - **0 pts** Correct
- **9 pts** 15% penalty for late submission

QUESTION 2

2 Analysis 10 / 10

- ✓ - **0 pts** Correct
- **8 pts** Incomplete Answer
- **2 pts** Slightly Incorrect
- **5 pts** Attempted answer but incorrect
- **5 pts** Incorrect reason for bouncing up; correct reason for coming back down
- **5 pts** Correct answer for bouncing up; incorrect reason for coming back down
- **1 pts** No explicit mention that the compressed limit switch, finger, and gearbox act like a spring
- **10 pts** Incorrect
- **1 pts** More details required: need to mention both that limit switch acts like switch and after the bounce, the motor reactivates

QUESTION 3

Style 30 pts

3.1 Soldering 15 / 15

- + **5 pts** plus
- ✓ - **0 pts** check plus
- **5 pts** check
- **10 pts** minus

3.2 Build Quality 15 / 15

- + **5 pts** plus
- ✓ - **0 pts** check plus
- **5 pts** check
- **10 pts** minus

QUESTION 4

4 Cleanup 5 / 5

- ✓ - **0 pts** Correct
- **5 pts** poor clean up/none

1 Lab Complete 15 / 15

✓ - 0 pts Correct

- 9 pts 15% penalty for late submission

Explain what causes it to come back up, and explain what pulls it back down again.

When the finger hits the limit switch, it comes down very fast onto the springy part, causing the finger to bounce back up. The finger then falls back down once more at a much slower pace so it stays rested when it hits the switch again.

5 Grading rubric: Build Quality

✓+	<ul style="list-style-type: none"> • All solder joints are clean, well-bonded and reliable • Wires are about the right length and routed sensibly to keep required length to reasonable level • Wires are color coded and use the appropriate type of wire core (stranded/solid) • Box shuts without additional force (or glue) and interior is tidy • Breadboards are laid out in an efficient or clearly followable manner • The toggle switch doesn't extrude significantly above the lid • The finger nicely rises and falls hitting both switches almost exactly
✓	<ul style="list-style-type: none"> • Solder joints are functional, but may not bond properly, or use too much or too little solder • Some wires are a bit longer than desirable to keep the box tidy • Wires are color coded and use the appropriate type of wire core (stranded/solid) • Everything fits in the box, but one side of the lid has to be held down • Breadboard can be followed with some effort
✓-	<ul style="list-style-type: none"> • Many solder joints are dirty, fragile, use too much solder, or adjacent joints are prone to touching • Wiring shows evidence of a lack of planning, <i>e.g.</i>, multiple unnecessary joints, clumsily long, short enough to strain the wire, box is difficult to close, and/or prone to short circuits • Wires are color coded using a non-standard scheme (<i>e.g.</i>, red for ground) • Breadboard layout is confusing

2 Analysis 10 / 10

✓ - 0 pts Correct

- 8 pts Incomplete Answer
- 2 pts Slightly Incorrect
- 5 pts Attempted answer but incorrect
- 5 pts Incorrect reason for bouncing up; correct reason for coming back down
- 5 pts Correct answer for bouncing up; incorrect reason for coming back down
- 1 pts No explicit mention that the compressed limit switch, finger, and gearbox act like a spring
- 10 pts Incorrect
- 1 pts More details required: need to mention both that limit switch acts like switch and after the bounce, the motor reactivates

3.1 Soldering 15 / 15

+ 5 pts plus

✓ - 0 pts check plus

- 5 pts check

- 10 pts minus

3.2 Build Quality 15 / 15

+ 5 pts plus

✓ - 0 pts check plus

- 5 pts check

- 10 pts minus

4 Cleanup 5 / 5

✓ - **0 pts** Correct

- **5 pts** poor clean up/none