Microprocessor Principles and Applications
Final (Hands-on Exam)
Jan. 6, 2021

1. Servomotor controller
   (a) (10%) Set up a system that uses adjustable resistor to control the direction of servomotor.
   (b) (15%) Change the degree of servomotor's direction from -90° to +90°.
   Note: Do not set -90° and +90° only. You should deal with each degree, which means you should set the degree of servomotor according to the ratio of output of adjustable resistor to high potential.

2. Please implement a UART by using the keyboard to control Question1's servomotor:
   (a) (5%) The CLI can show what you type.
   (b) (10%) Design a "motor" mode. Type "motor" to enter this mode.
   In the "motor" mode, computer should show the value of servomotor's degree.
   Pressing "e" will allow you to exit this mode
   (c) (10%) Design a "degree" mode. Type "degree" to enter this mode.
   In the "degree" mode, we change the degree of servomoter through UART ranged from -90° to +90°. For example, type "90" and press "enter", the servomotor will turn to 90 degree.
   Pressing "e" will allow you to exit this mode