**Practice**

1. Objective and Task of the experiment:
2. Master the use of Simulink and its programming technique.
3. Understanding motor control methods and the approach to tuning its parameters
4. Experimental instruments, equipment and materials
5. Windows PC with Matlab2024
6. Control principle test board
7. Question
8. The method used to calculate the encoder increment value in the code is very crude, try implementing encoder processing module using one formula.

HINT: (

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| Simulink Code: |

1. If I want the motor make a turn, how to set the target position \_\_\_ ?
2. Only use Kp to regulate the motor speed, what happed? Record the the system's response curve when the target speed changes from 5 r/s to 15 r/s and provide your analysis.

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| Kp: |
| Response Curve: |
| Analysis: |

1. Use Kp and Ki to regulate the motor speed, give an appropriate PI parameter and record the response curve when the target speed changes from 5 r/s to 15 r/s.

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| Kp:  Ki: |
| Response Curve: |

1. Design appropriate PI parameters for the position loop, provide the system's response curve when the target position changes from -1500 to 1500.

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| Kp:  Ki: |
| Response Curve: |