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SOMCHAI THANOODHAMMAKHUN : MICROCOMPUTER CONTROL OF THE MASTER-SLAVE
CHULA2 MANIPULATOR ARM. THESIS ADVISOR : ASST.PROF. DR. VIBOON
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This thesis studies and analyses a real-time microcomputer-based position control of the master-slave CHULA2 manipulator arm by using state-variable-feedback. The effect of system parameters to time response and system stability is discussed. The tested master-slave CHULA2 manipulator arm has two revolving joints with plane-motion manipulator arm. The slave arm is bigger than the master's and each joint is indirectly driven by a d.c. servomotor.

The experimental results show that the slave arm can effectively track, in real time, the movement of the master arm. Increase of gain (or natural frequency) will decrease the maximum position error while increase of the sampling time will increase the maximum position error. However, excessive increase of gain or sampling time may cause the system oscillation or eventually unstable.