CHAPTER 6

CONCLUSIONS

The primary object was to design a remote positional control--ler using pulse-width modulation method. The design was done in Chapter 3, to accomplish the theoretical system and the mathematical model given in chapter 2. The system was analyzed in Chapter 4, and the Nyquist diagrams were plotted. Test for the system stabilities were carried out and presented in Chapter 5.

The design and the experimental results are quite agreeable. The differences are due to the test methods used are not accurate enough. Other sources of error are from the tolerances of the com--ponents used. The mono-stables used by forming up two NAND gates are not reliable, since the gate cut-off voltage is 0.8 volts and from 1.2 to 2.0 volts the gate begins to conduct. The level from 0.8 to about 2.0 volts is indeterminate for the logic condition. A better way of solving the problem is to use the mono-stable integrated cir--cuit, SN74121, which will improve the performance of the system. The dead-zone control circuitry can also be replaced by a mono-stable IC if the dead-zone is to be controlled accurately.

The results obtained, however, are quite satisfactory . The designed system is very useful where a number of objects are to be controlled simultaneously. By a simple time division multiplexing,[9] the remote objects can be controlled using only one transmission line or one radio channel. By using a sampling period of 20 ms with 2 ms space for a control-function, the design given is capable of control--ling ten functions simultaneously with good stability.