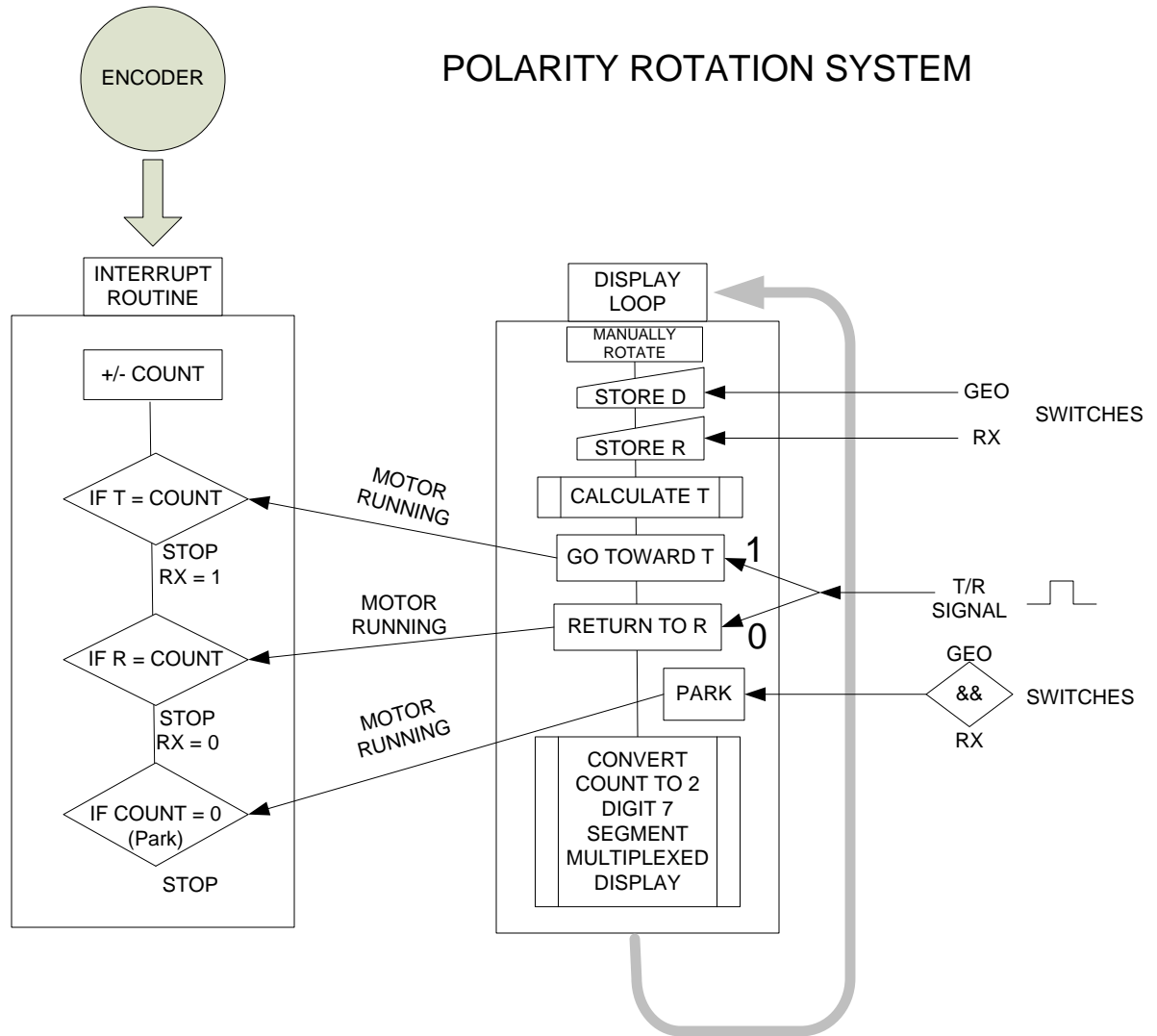


# POLARITY ROTATION SYSTEM



## DESCRIPTION:

The program loops continuously updating the two 7-segment multiplexed digits. A momentary-Off-momentary switch allows manually moving the DC motor clockwise or counter clockwise.

An incremental quadrature 360 ppr encoder is attached to the motor and sends the A/B pulses through a RS422 line driver to the control unit line receiver to a LS7184 decoder that outputs clock and direction to the MPU.

The clock is connected to the MPU interrupt port. The interrupt counts clock pulses either plus or minus. The encoder outputs a Z-pulse at zero degrees which resets the count on every zero crossing to eliminate any errors from noise etc.

A "Park" routine senses RX and GEO switches pressed simultaneously and sends the motor to zero position where, within the interrupt routine it cuts off the motor relay. This is a function typically executed when shutting down. All of the above works great on the prototype using the polrot7p3.c program.

The Automatic Faraday Compensation routine works as follows: I manually rotate to a specific GEO position and press the GEO button to store the count at that position. Then I search for the polarity of the strongest signal, and then press RX to store that position. The MPU then calculates T which is the optimum transmit polarity. No action is taken until an external T/R signal shows up at RA0.

Then the motor travels to the T position and stops there for the duration of the T/R signal. When the signal stops, the motor returns to the RX position and terminates the process until another T/R occurs.

Note: All motor initiations and GEO and RX store functions need to start within the display loop and the "stop" code must be within the interrupt routine.