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Project: "Medication Scheduler"
Batch 2

IDEA:

The idea of the project is to set up a medication scheduler that schedules a buzzer to ring for 10 seconds at 10 second intervals, as the buzzer rings (reminding said patient of the time of medication), the sensor is turned on; if the sensor detects motion near it (signaling a hand reaching for medication); the motor turns on (simulating dispensing of medicine).

SENSORS AND PARTS:

Sensors: Ultrasonic analog sensor
Boards: FPGA board, Arduino Uno board
Parts: Bread-board, H-bridge, motor (3V-6V), Buzzer, Jumper wires

CODE EXPLANATION:

First of all, the switch has to be toggled to ‘1’ for the system to work. Using the FPGA built in CLK. On the rising edge of the clock the time counter is incremented. Every 10 counter units, the buzzer goes on for 10 seconds, and the sensor is turned for the same period of time. The motor works when the sensor senses an object in a radius less than 10 centimeters of it (Using arduino uno). After the 10 seconds, the buzzer and the counter and the motor reset to initial values until the next CLK cycle.

PIN ASSIGNMENT:

FPGA:
Sensor/Arduino input: PIN_V10 (GPIO_[0])
H-bridge/Motor output: PIN_V9 (GPIO_[2])
Buzzer output: PIN_AA7 (GPIO_[26])
CLK input: PIN_P11
Switch input: PIN_C10
VCC: 5V PIN 11
GND: GND PIN 30

Arduino:
TRIG_PIN 10
ECHO_PIN 11
output_PIN 9
GND GND
VCC PIN 5V