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question on lab 10 when input = 0x7 (2 cars and a pedestrian present)

Below is a snippet from my lab 10 - I'm wondering where I went wrong when the input = 0x7, cars on west and south roads, and a pedestrian present. I put a for-loop in when I detected the input = 0x7, and cycled through each of my 11 states (not 9 - added 2 extra states - is that fine - or do you have to implement it in 9 states to make it work with the grader?) So it output to PB5-0 and PF3, PF1 for each state, before reading the sensor input again. However, the grader never gets passed this check of the output sequence for Input = 0x7 before failing (first test). I chose delay = 50 since 50 times .01 sec (10ms) = .5sec, or the less than 1 second I thought was recommended for the time to wait in each state.

At first I had implemented it in 9 states, and then I thought it would be easier with 11 states, since each of the goWest or goSouth states could then have 2 waitToGoTo--the next states. Perhaps that is incorrect? The reason I changed it was because if you are in goWest for example, and then move to waitWest, you could be waiting because either a pedestrian had arrived and you moved to the wait state, or a car on the south road had arrived and you moved to the wait state, so I added those 2 extra wait states dependent on whether you were moving because of a sensor detect a pedestrian or a car.

So I'm not sure if that is a problem, but I did implement it that way. If that is fine, then my question is in regard to when I cycle through the outputs of these 11 states, the grader chokes. I observed in the simulator that all the LEDs were as I had expected them to be (but not as the grader expected them to be).

I thought the lab had also stated that you should not put a for loop within your while loop, but I did, once I detected Input on sensors = 0x7, so that I would not change the Input again until I cycled through the 11 states and output to the LEDs. Then I allowed the Input to read the sensors again.

Here is my code snippet. Any help appreciated! And I know I'm behind most people in this class for one reason or another, in that I'm working on lab 10 today, April 10th! I hope to catch up though before the course ends. Thanks.

```
// west facing red light connected to PB5
// west facing yellow light connected to PB4
// west facing green light connected to PB3
// south facing red light connected to PB2
// south facing yellow light connected to PB1
// south facing green light connected to PB0
// pedestrian / walker - WALK green light connected to PF3
// pedestrian / walker - DONT WALK - SOLID red light connected to PF1
// pedestrian / walker - HURRY WALK - FLASH red light ON and OFF TWICE connected to PF1
// pedestrian / walker present on either west or south road sensor detector connected to PE2 (1=walker present)
// west facing car detector connected to PE1 (1=car present)
// south facing car detector connected to PE0 (1=car present)

  while(1){
    LIGHT = FSM[S].Out >> 2;  // set west and south road traffic LED lights (PB5-0) - output based on current state
      GPIO_PORTF_DATA_R = ((FSM[S].Out & 0x2) << 2) | ((FSM[S].Out & 0x1) << 1); // set walk/don't walk leds (PF3 and PF1)
    SysTick_Wait10ms(FSM[S].Time);
    Input = SENSOR;    // read sensors
      if (Input == 0x7) {
        for (i = 0; i < 10; i++) {
          S = FSM[S].Next[Input];
          LIGHT = FSM[S].Out >> 2;  // set west and south road traffic LED lights (PB5-0) - output based on current state
          GPIO_PORTF_DATA_R = ((FSM[S].Out & 0x2) << 2) | ((FSM[S].Out & 0x1) << 1); // set walk/don't walk leds (PF3 and PF1)
          SysTick_Wait10ms(FSM[S].Time);
        }
        Input = SENSOR;    // read sensors
      }
      S = FSM[S].Next[Input];
  }

struct State {
  unsigned long Out;
  unsigned long Time;
  unsigned long Next[11];};
typedef const struct State STyp;
#define goWest   0
#define waitWestToGoSouth 1
#define waitWestToGoWalk   2
#define goSouth 3
#define waitSouthToGoWest   4
#define waitSouthToGoWalk 5
#define goWalk   6
#define hurryWalk 7
#define noWalkNoCars1  8
#define dontWalkNoCars  9
#define noWalkNoCars2  10

STyp FSM[11]={
```

{0x31,50,{goWest, waitWestToGoSouth, goWest, waitWestToGoSouth, waitWestToGoWalk, waitWestToGoSouth, waitWestToGoWalk, waitWestToGoSouth}},

{0x45,50,{goSouth, goSouth, goSouth, goSouth, goSouth, goSouth, goSouth, waitWestToGoWalk}},
{0x51,50,{goWalk, goWalk, goWalk, goWalk, goWalk, goWalk, goWalk, goSouth}},
{0x85,50,{goSouth, goSouth, waitSouthToGoWest, waitSouthToGoWest, waitSouthToGoWalk, waitSouthToGoWalk, waitSouthToGoWest, waitSouthToGoWest}},
{0x29,50,{goWest, goWest, goWest, goWest, goWest, goWest, goWest, waitSouthToGoWalk}},
{0x89,50,{goWalk, goWalk, goWalk, goWalk, goWalk, goWalk, goWalk, goWalk}},
{0x92,50,{hurryWalk, hurryWalk, hurryWalk, hurryWalk, goWalk, goWalk, goWalk, hurryWalk}},
{0x91,50,{noWalkNoCars1, noWalkNoCars1, noWalkNoCars1, noWalkNoCars1, noWalkNoCars1, noWalkNoCars1, noWalkNoCars1, noWalkNoCars1 }},
{0x90,50,{dontWalkNoCars, dontWalkNoCars, dontWalkNoCars, dontWalkNoCars, dontWalkNoCars, dontWalkNoCars, dontWalkNoCars, dontWalkNoCars }},

{0x91,50,{noWalkNoCars2, noWalkNoCars2, noWalkNoCars2, noWalkNoCars2, noWalkNoCars2, noWalkNoCars2, noWalkNoCars2, noWalkNoCars2 }},
{0x90,50,{noWalkNoCars2, goSouth, goWest, goWest, goWalk, goSouth, goWest, goWest }}};

lab10

Just now by Karen West

the students' answer, *where students collectively construct a single answer*

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