An overview of the project:

We built a smart house that has 3 main features. It detects the person entering the house with the IR sensors and opens the door accordingly. If both IR sensors sense nothing the door remains closed otherwise, the door opens. We control the lights in the house depending on the environment. If we're at night, the lights in the house will open so the owner can move around freely inside since, the light sensor detects no lights; however, when we're in the day time, to save energy, the lights turn off, so we can use the natural sunlight. The smoke detector, detects smoke or fire, and turns the red lights in the house to alarm the person living there that an action should be taken.

Input sensors:

2 IR sensors

1 smoke detector

1 light detector

Outputs:

A servo motor

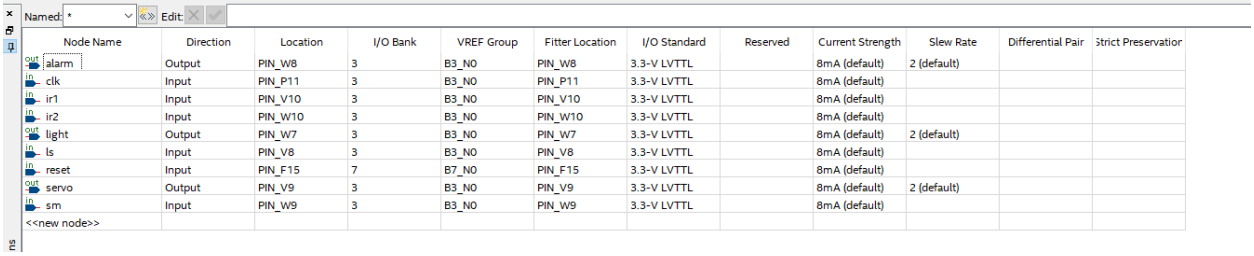
LED lights

We divided ourselves into two teams, a team for hardware and another for software. We built a model, demonstrated in the video we submitted.

Code:

- An entity called "smokedetect" for the smoke detector.
- An entity called "lightsensor" for the light sensor.
- 3 entities called "clk64Khz", "servo_pwm" and "servomotor" that control the servo motor
- All entities are combined in our main entity called "testingMotor"

After we finished the code, we assigned the pins as follows:



Named: * Edit:

Node Name	Direction	Location	I/O Bank	VREF Group	Fitter Location	I/O Standard	Reserved	Current Strength	Slew Rate	Differential Pair	Strict Preservation
alarm	Output	PIN_W8	3	B3_N0	PIN_W8	3.3-V LVTTL		8mA (default)	2 (default)		
clk	Input	PIN_P11	3	B3_N0	PIN_P11	3.3-V LVTTL		8mA (default)			
ir1	Input	PIN_V10	3	B3_N0	PIN_V10	3.3-V LVTTL		8mA (default)			
ir2	Input	PIN_W10	3	B3_N0	PIN_W10	3.3-V LVTTL		8mA (default)			
light	Output	PIN_W7	3	B3_N0	PIN_W7	3.3-V LVTTL		8mA (default)	2 (default)		
ls	Input	PIN_V8	3	B3_N0	PIN_V8	3.3-V LVTTL		8mA (default)			
reset	Input	PIN_F15	7	B7_N0	PIN_F15	3.3-V LVTTL		8mA (default)			
servo	Output	PIN_V9	3	B3_N0	PIN_V9	3.3-V LVTTL		8mA (default)	2 (default)		
sm	Input	PIN_W9	3	B3_N0	PIN_W9	3.3-V LVTTL		8mA (default)			
<<new node>>											