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-- Company:
-- Engineer: David Paquette
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-- Create Date:    17:02:39 11/19/2015
-- Design Name:
-- Module Name:    TemperatureSetpointControl - Behavioral
-- Project Name:
-- Target Devices:
-- Tool versions:
-- Description:
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-- Dependencies:
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-- Revision:
-- Revision 0.01 - File Created
-- Additional Comments:
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library IEEE;
use IEEE.STD_LOGIC_1164.ALL;

-- Uncomment the following library declaration if using
-- arithmetic functions with Signed or Unsigned values
--use IEEE.NUMERIC_STD.ALL;

-- Uncomment the following library declaration if instantiating
-- any Xilinx primitives in this code.
--library UNISIM;
--use UNISIM.VComponents.all;

entity TemperatureSetpointControl is
      Port(clk_i : in std_logic;
                  rst_i : in std_logic;
                  incrementButton : in std_logic;
                  decrementButton : in std_logic;
                  selectedTemperature : out integer range 0 to 100);
end TemperatureSetpointControl;

architecture Behavioral of TemperatureSetpointControl is
      signal setpoint : integer range 0 to 100:=32;
      signal decrementSetpoint, incrementSetpoint : std_logic:='0';
      signal minValue : integer range 0 to 100:=25;
      signal maxValue : integer range 0 to 100:=40;
begin

      selectedTemperature<=setpoint;

      incrementSetpointButtonFilter : entity work.ButtonOnePressFilter
            port map(
                  clk=>clk_i,
                  reset=>rst_i,
                  buttonInput=>incrementButton,
                  filteredButtonOutput=>incrementSetpoint );
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	decrememntSetpointButtonFilter : entity work.ButtonOnePressFilter
			port map(
				clk=>clk_i,
				reset=>rst_i,
				buttonInput=>decrementButton,
				filteredButtonOutput=>decrementSetpoint );

	process (clk_i, rst_i)
	begin
		if(rst_i='0') then
			setpoint <= 32;
		elsif (clk_i'event and clk_i = '1') then
			if(decrementSetpoint='1' and setpoint > minValue) then
				setpoint<= setpoint - 1;
			end if;
			if(incrementSetpoint='1' and setpoint < maxValue) then
				setpoint <= setpoint + 1;
			end if;
		end if;
	end process;
end Behavioral;
```