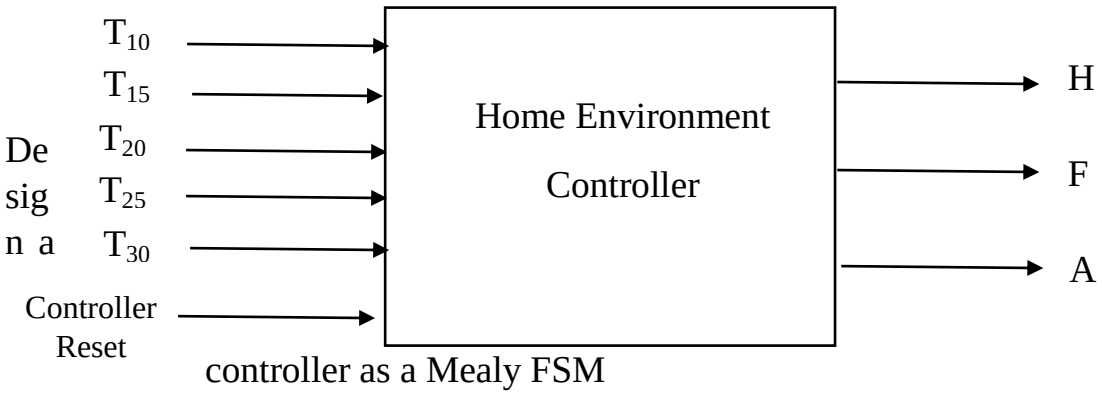
Figure below shows a home environment controller. Input signals T_i is asserted high if temperature is equal to or more than i^{o} C and asserted low if the temperature is less than i^{o} C. This home environment controller is used to turn on a Heater (H), a Fan (F) and an AC (A) intelligently according to following rules:

(1) Heater is turned 'ON' whenever temperature falls below 10^{o} C and is turned 'OFF' when temperature rises to or exceeds 15^{o} C.
(2) Fan is turned 'ON' when temperature rises to or exceeds 25^{o} C and is turned 'OFF' when temperature falls below 20^{o} C.
(3) AC is turned 'ON' whenever temperature rises to or exceeds 30^{o} C and is turned 'OFF' when temperature falls below 25^{o} C



Design a controller as a Mealy FSM

(assume that all the inputs are asynchronous and need to be synchronised* ; also that all the control output are required to be synchronised.)

*Controller Reset however is not synchronised and stays as an asynchronous input to FSM.

Show the synthesised results..