Faculty of Science, Engineering and Technology

Computer Systems

Week 6

Overview

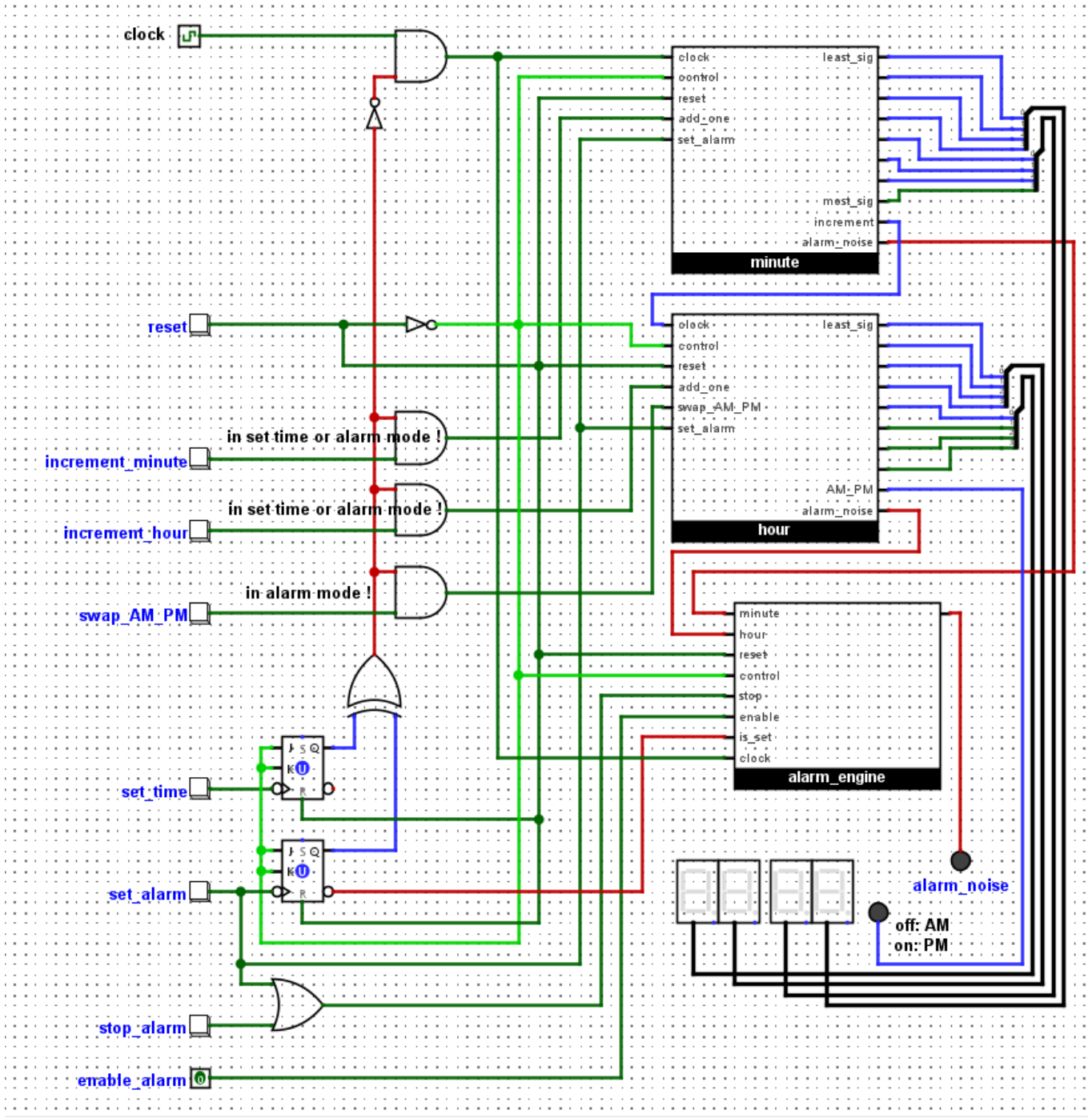
Working on your assignment

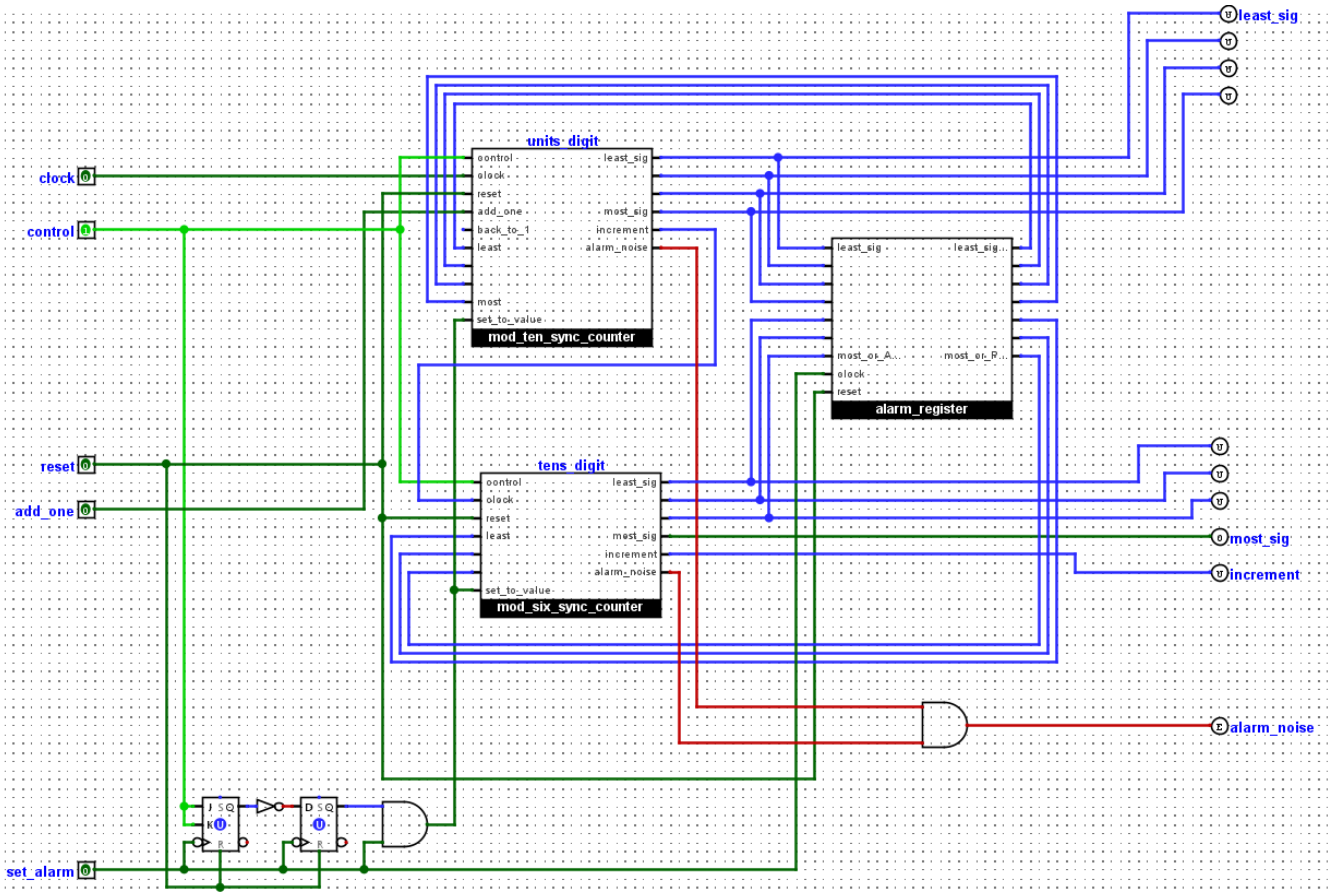
1. Work on your assignment
2. What is the most challenging component of the assignment ? Be as specific as possible.

Ans: The most challenging part during the assignment is how to make the whole circuit synchronized, or at least prevent unexpected behavior. In the lesson we use the D flip flop as a buffer, however this has a by-effect: the bits travel through the D flip flops AFTER A DELAY, making it a real challenge maintaining all functions to perform precisely in time. Another problem is that the register for the alarm is set to 0000000 which immediately triggers the alarm when the clock starts.

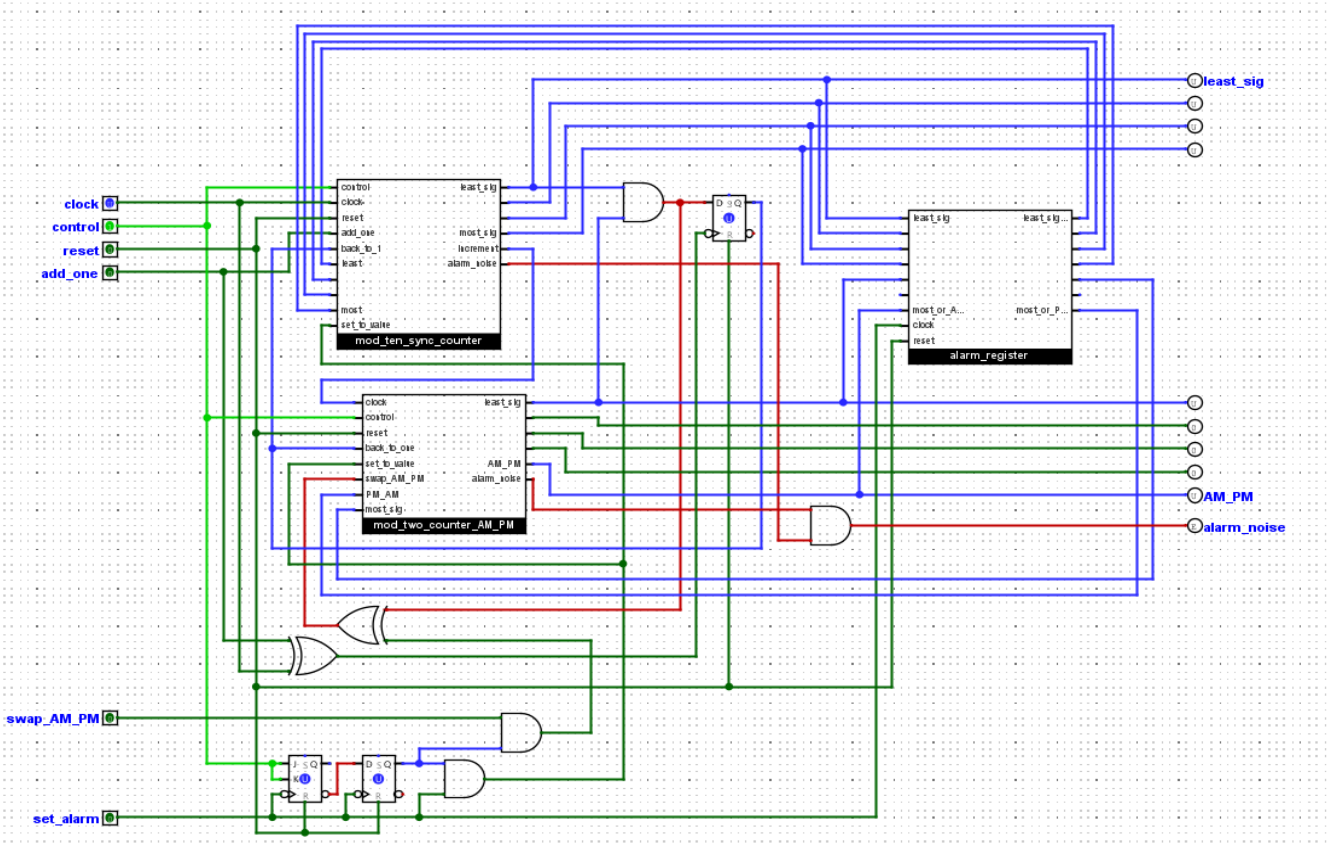
3. Discuss this answer, and your progress, with your lab demonstrator
4. Document your progress so far and plans

Export a document of evidence of your progress to date, including images of notes/ screenshots and any other notes.

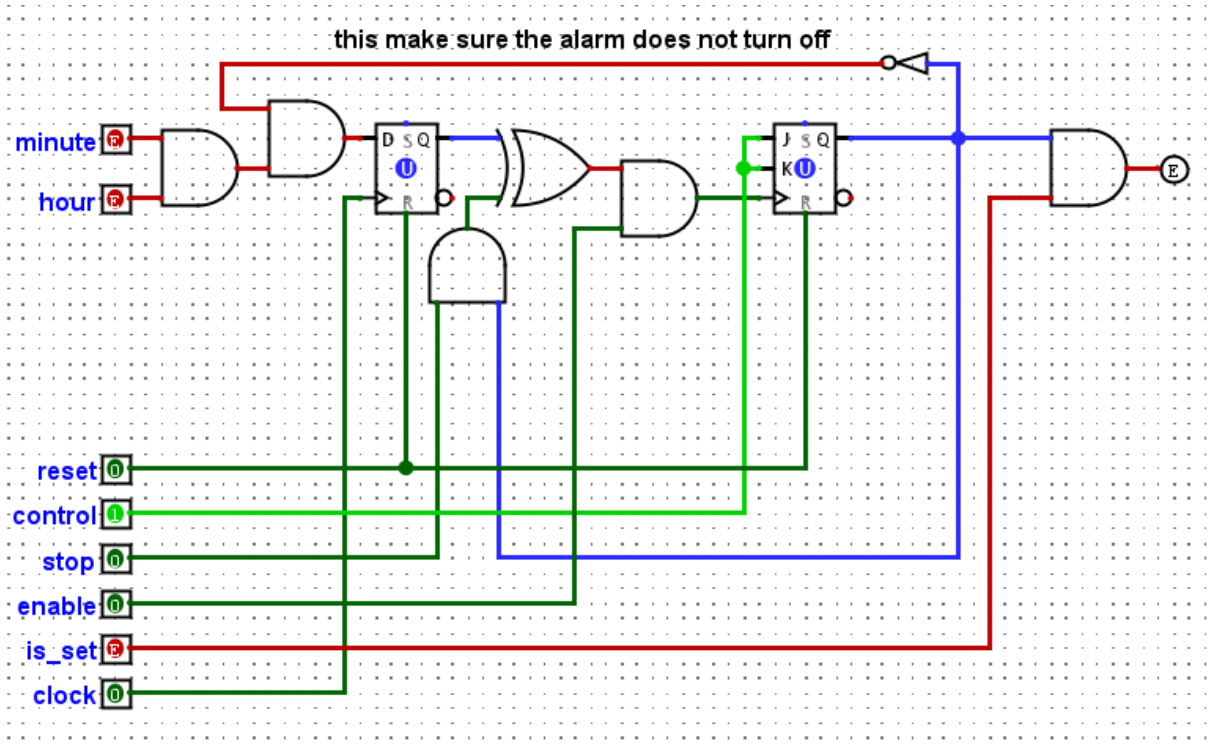

clock
reset
increment_minute
increment_hour
swap_AM_PM
set_time
set_alarm
stop_alarm
enable_alarm
in set time or alarm mode !
in set time or alarm mode !
in alarm mode !
clock
control
reset
add_one
set_alarm
least_sig
most_sig
increment
alarm_noise
minute
clock
control
reset
add_one
swap_AM_PM
set_alarm
least_sig
AM_PM
alarm_noise
hour
minute
hour
reset
control
stop
enable
is_set
clock
alarm_engine
alarm_noise
off: AM
on: PM



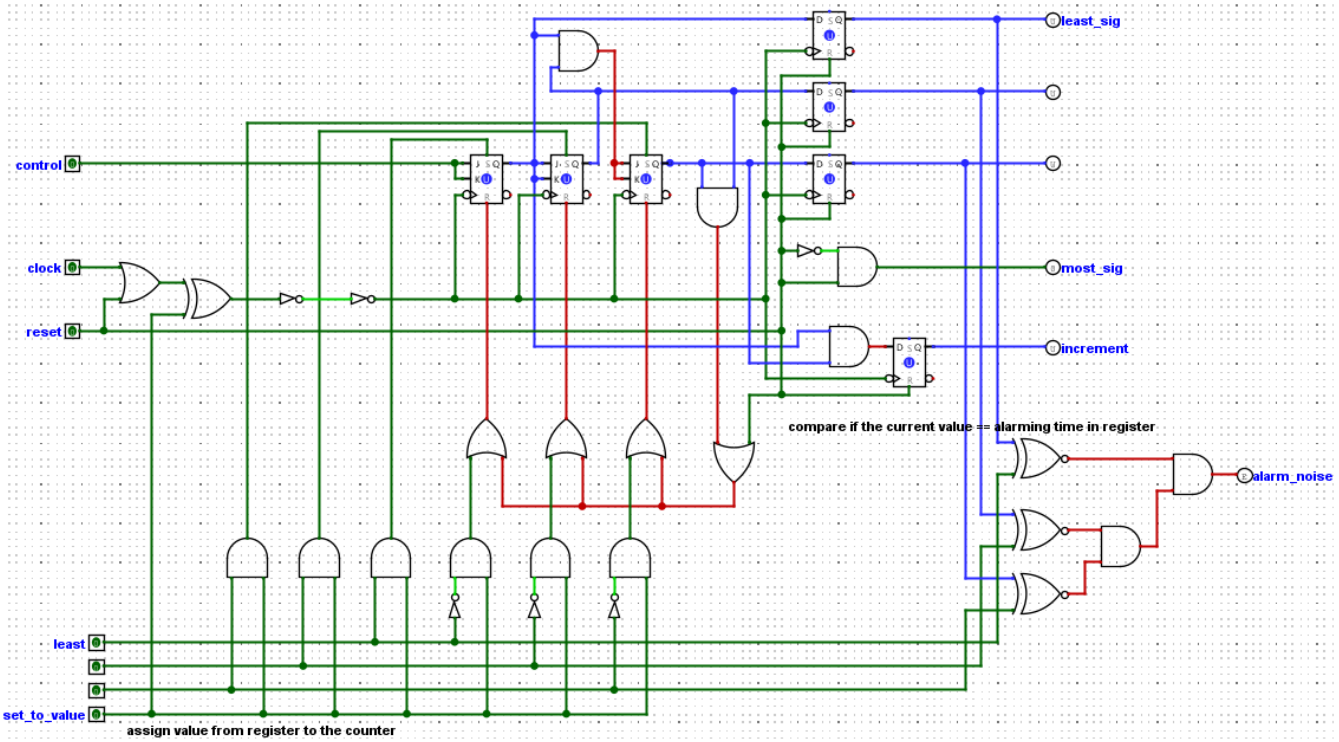
Inside the minute sub-circuit



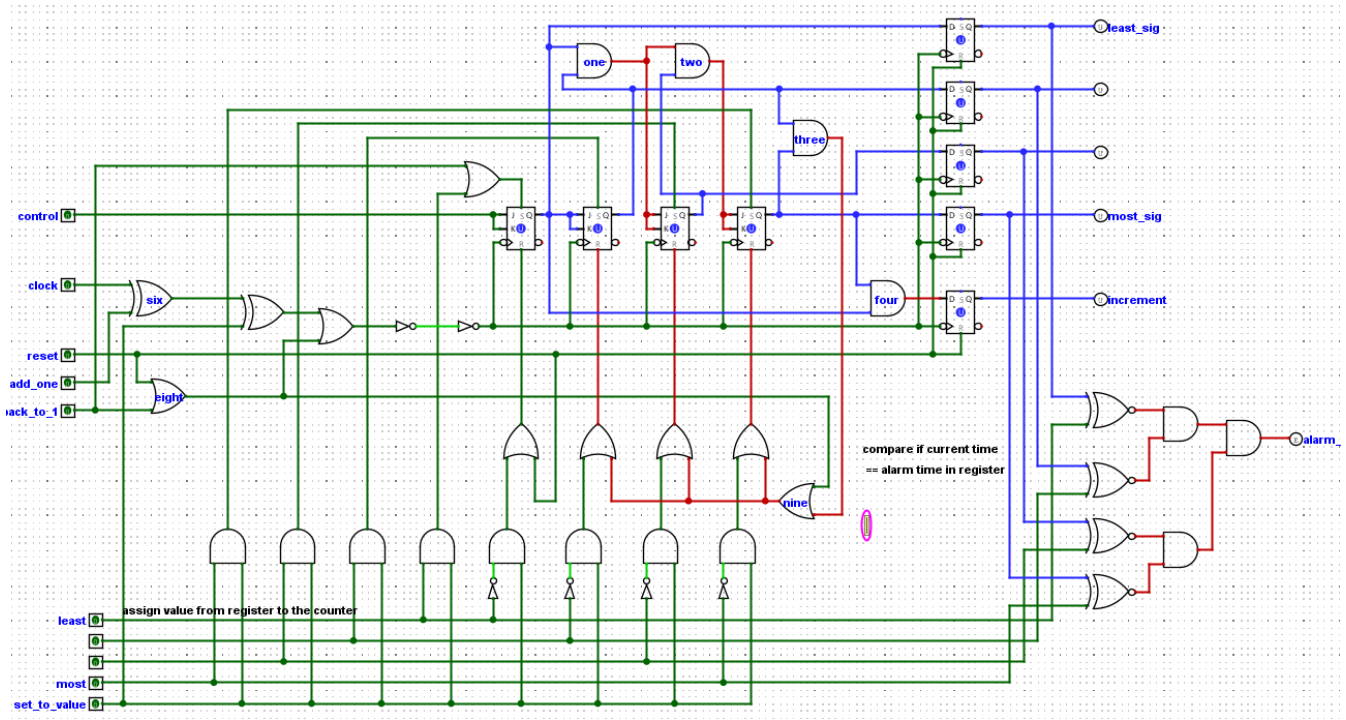
Inside the hour sub-circuit



The alarm engine from inside

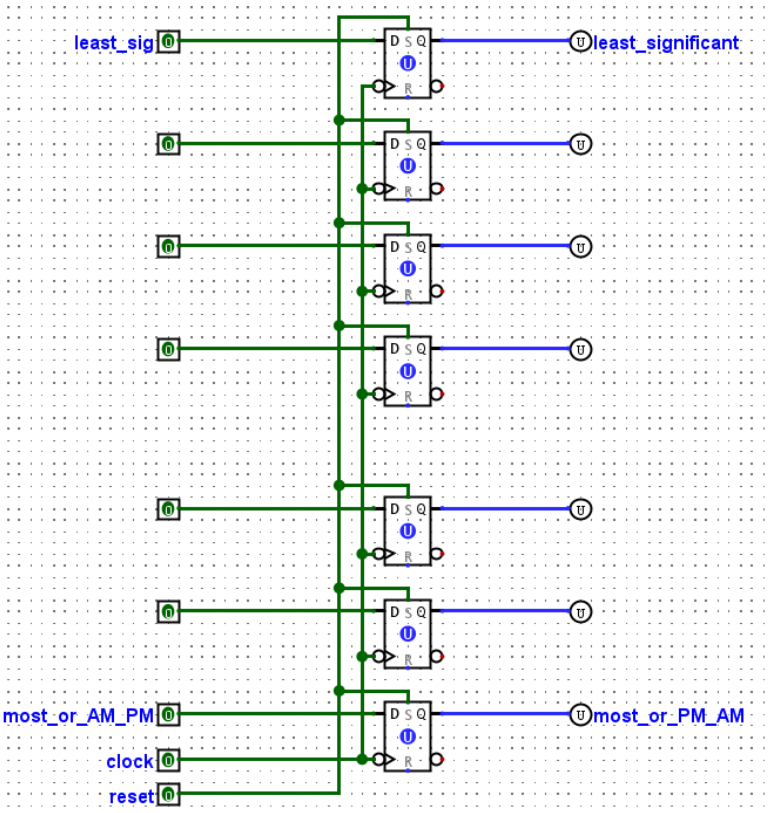


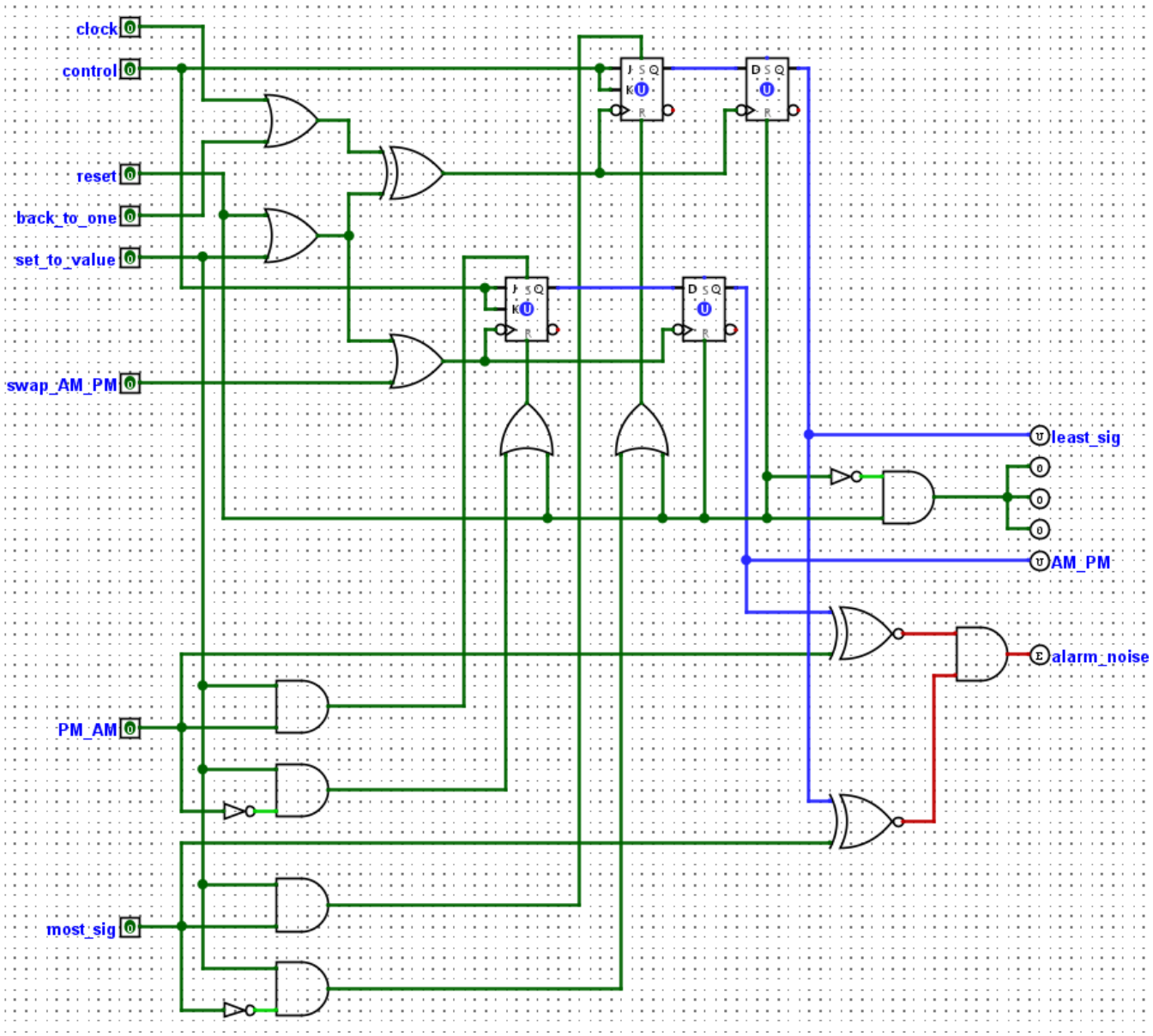
Mod-6-counter with assigning engine and comparing engine



Mod-10-counter with assigning engine and comparing engine

7 bit register for storing current time in alarm mode and alarming time





Hour ‘tens’ digit counter and AM-PM calculator