PRACTICAL REPORT

MODUL 2

DIGITAL SYSTEM

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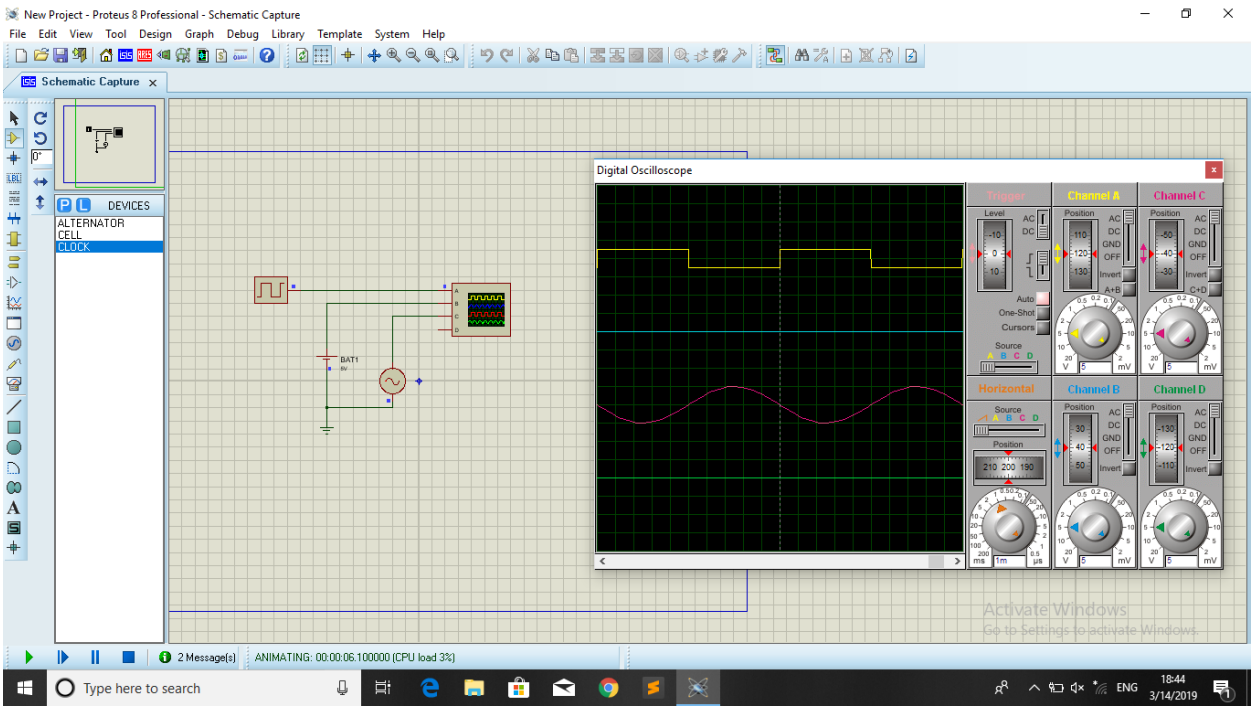
1. Trial 1. Signal type excercise

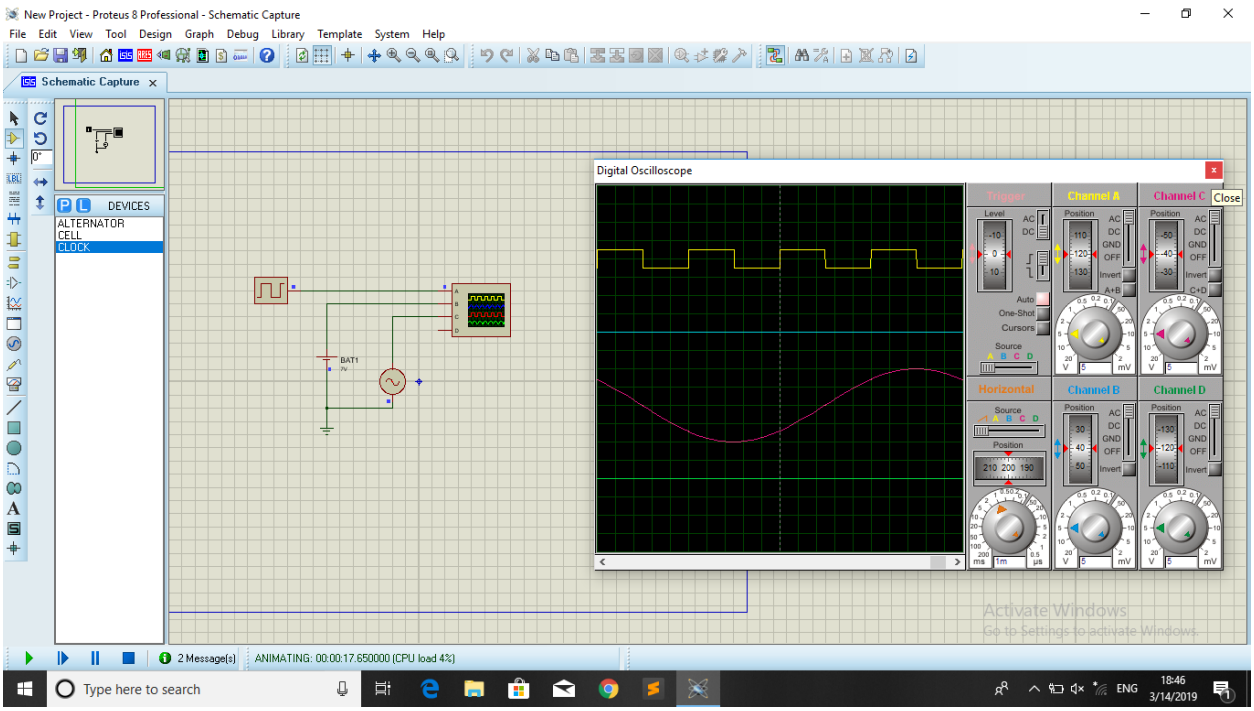
1. Make a circuit like in figure 2.3!



2. Run the simulation!
3. Try to understanding about *trigger source*, *signal type*, *volt/div*, *signal position* and *time/div* by setting each *switch*.
4. Give an explanation.

   The default horizontal position is 200. When you set the trigger source to D, the signal in channel A and C start to moving. The default position of channel A is 120, B is -40, C is 40, and D is -120. And the type of signal the of four channel is AC, meanwhile the trigger switch for the signal type is DC.

5. Stop the simulation and edit the components.
6. Run the simulation, and give an explanation!



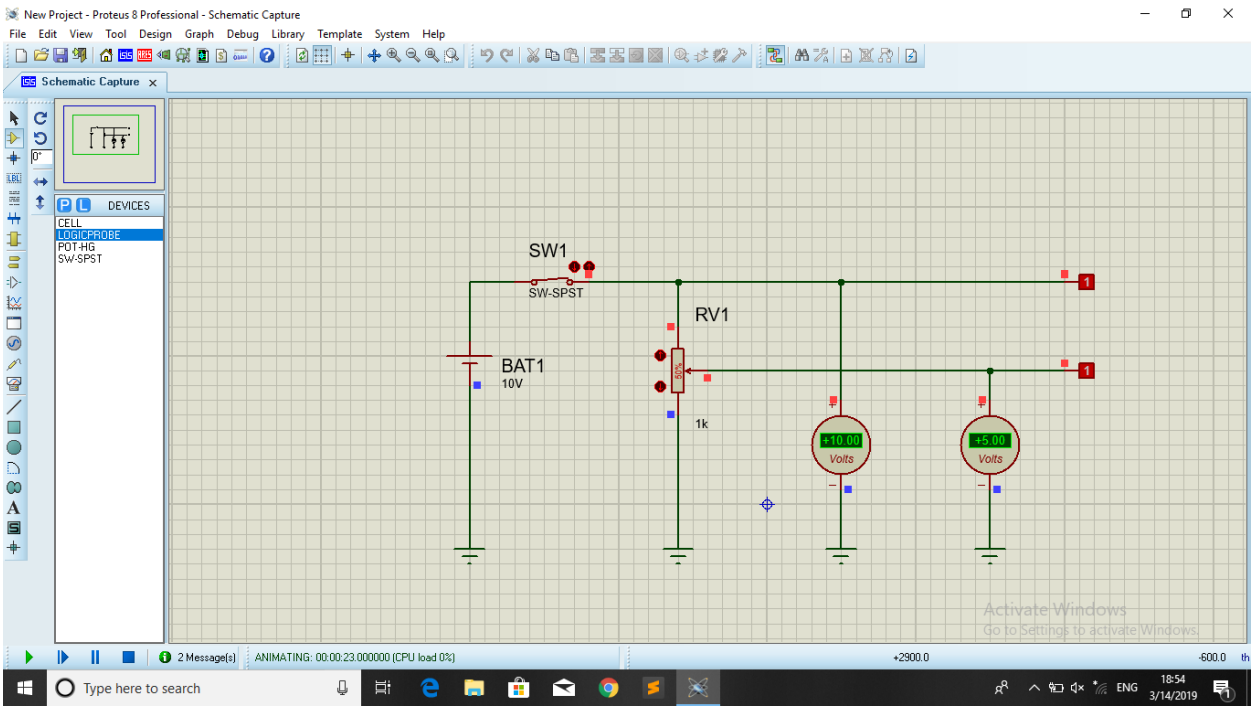
The size of the signal wave is changing. And the signal in channel A and C starts to move, though the position of each channel is remain the same.

7. Answer the following questions!
    a. What is the difference between analog and digital signal?
        i. **Analog signal is stable**
        ii. **Digital signal is unstable**
    b. What is the characteristic of the signal in each component?
        i. Signal from the alternator is **analog** because **it cannot be measured as on/off. It can only be in the highest and lowest voltage**
        ii. Signal from the battery is **analog** because **it's stable**
        iii. Signal from the clock source is **digital** because **it can be seen "on/off", and "in/out"**
8. Conclusion:

    In the Trial 1, the signal is all in DC type. And the trial show the differences between analog and digital signal.

2. Trial 2

1. Make the circuit and run the simulation!



2. Click the SW1! According to your simulation, fill the blank!
   a. DC1 voltmeter: **10** Volt.
   b. DC2 voltmeter: **5** Volt.
   c. Logicprobe 1 shows the logical condition : **1**
   d. Logicprobe 2 shows the logical condition : **1**
3. Click the RV1 component (POT-HG) up and down! And fill the blank!
   a. Logicprobe 2 show the logical condition **1 (high).**

      If the DC2 voltmeter : **3.60** to **10.0** volts.

   b. Logicprobe 2 show the logical condition **0 (low).**

      If the DC2 voltmeter : **0.00** to **1.50** volts.

4. Conclusion:

When you turn on the SW1, it will affect the logicprobe, it means the power flows into it from the source. And you can set the voltage level to the logicprobe 2, because it is connected to the source by the variable resistor (POT-HG). And the DC voltmeter show that the limit of digital signal voltage is 10.0.