

DemoRoom – process and description

Background:

Take the amphitheater classroom of ICP DAS for example, there are 19 I-7065 and two I-7018 used to control lights, air conditioner, and temperature measurements. Here we use a TPD-280 to control these I-7065 and I-7018.

Preparations:

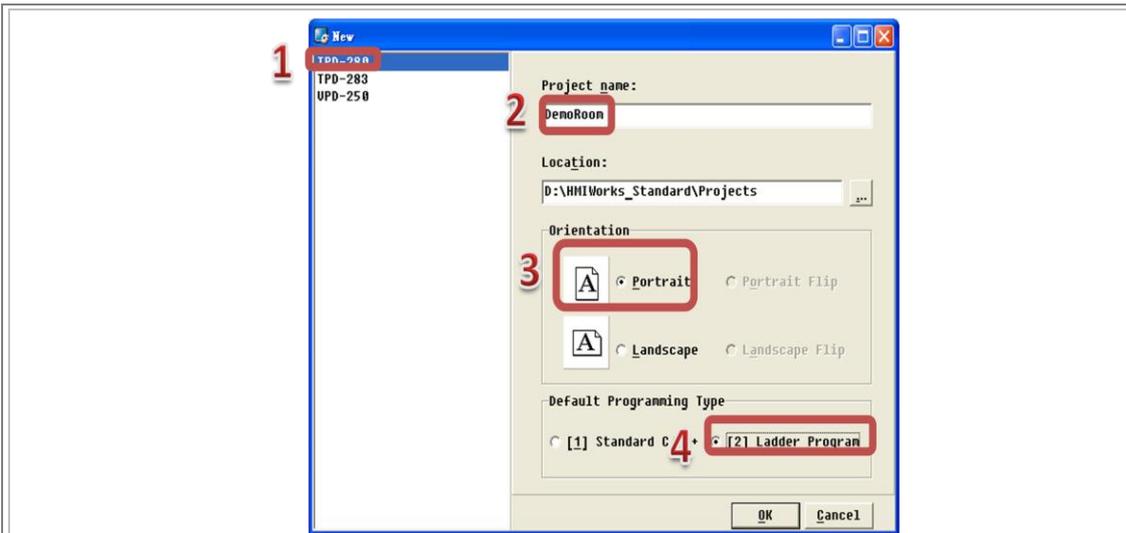
1. Circuit diagrams (including lights, air conditioners, mechanical switches, etc.)
2. Background pictures used in TouchPAD.
3. Pictures of buttons in TouchPAD (two pictures per button; one for “turn on” and the other for “turn off”)

First Page of DemoRoom

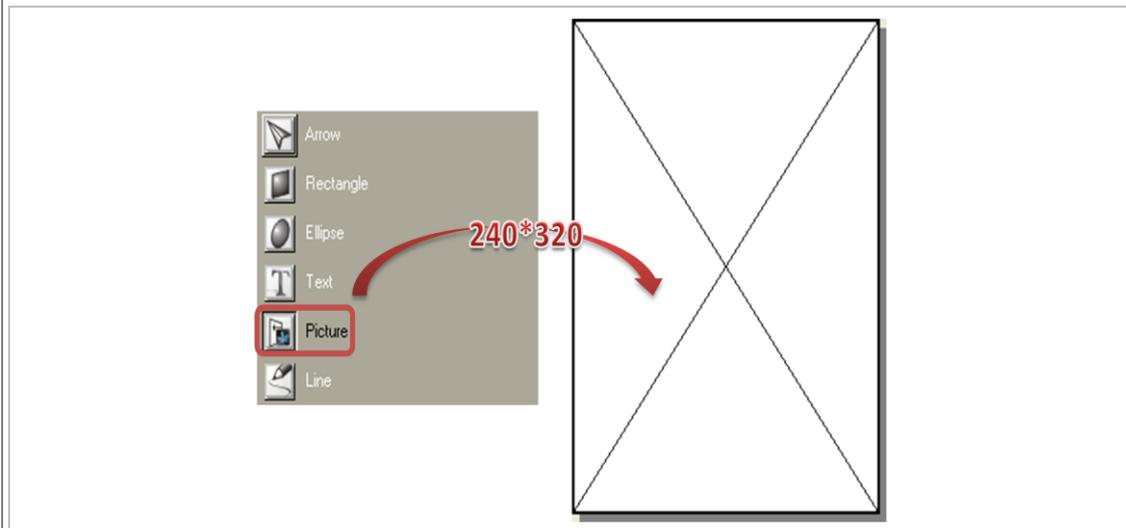
1. Create a new project.



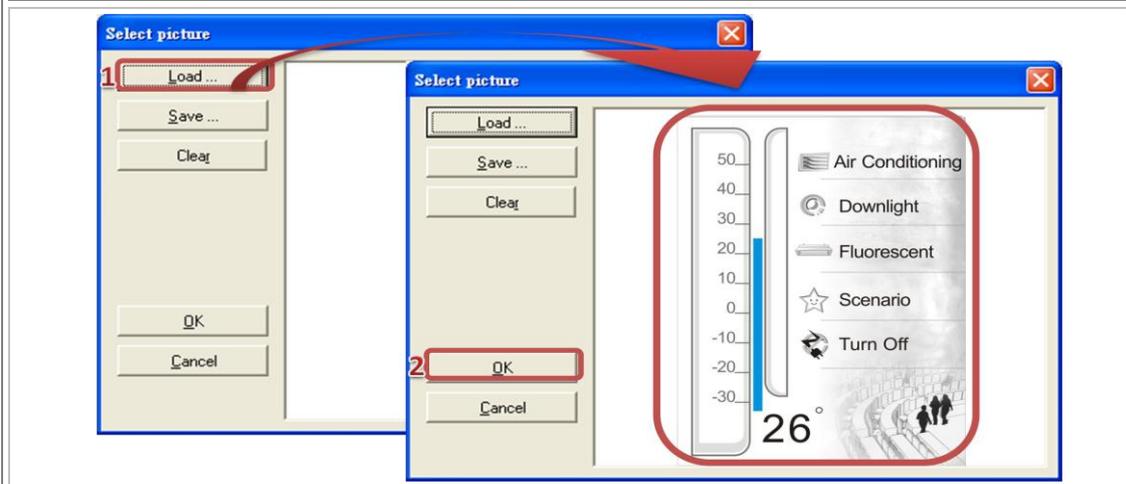
2. Enter project name as DemoRoom, orientation set as Portrait, default programming type set as Ladder Program.



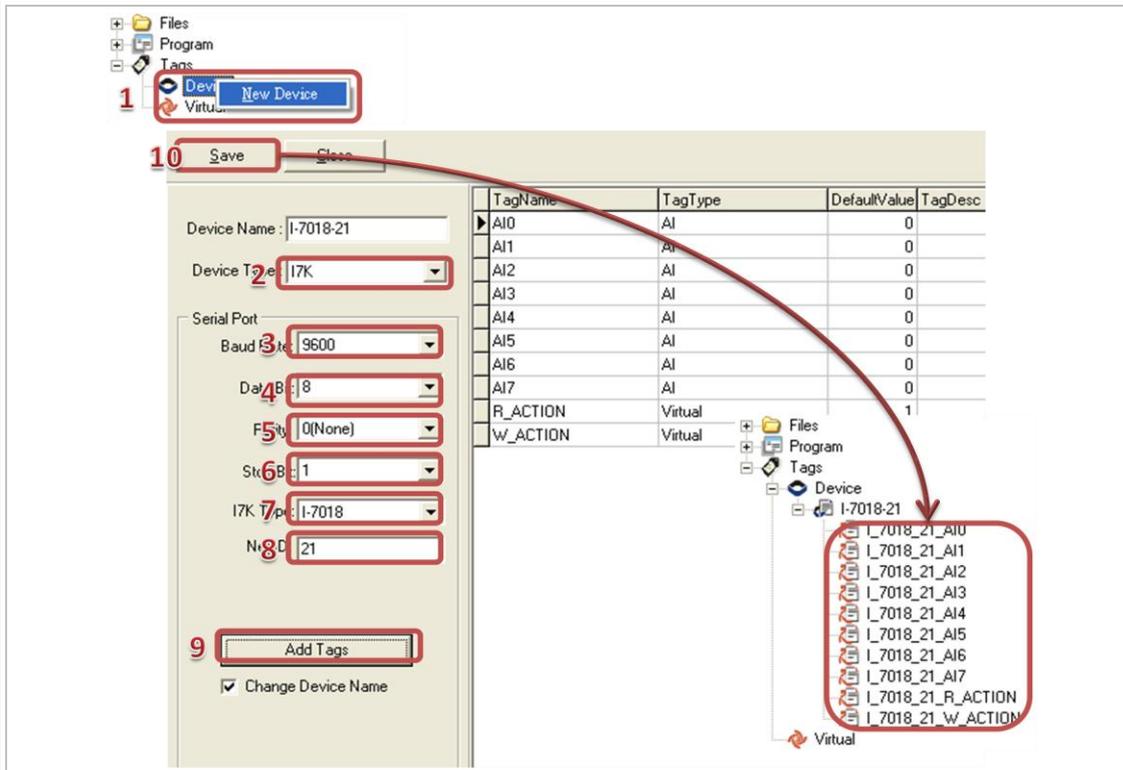
3. In the toolbox, drag and drop the Picture component in the Drawing list to the canvas area. Set properties Width and Height of the Picture component to 240 and 320, respectively.



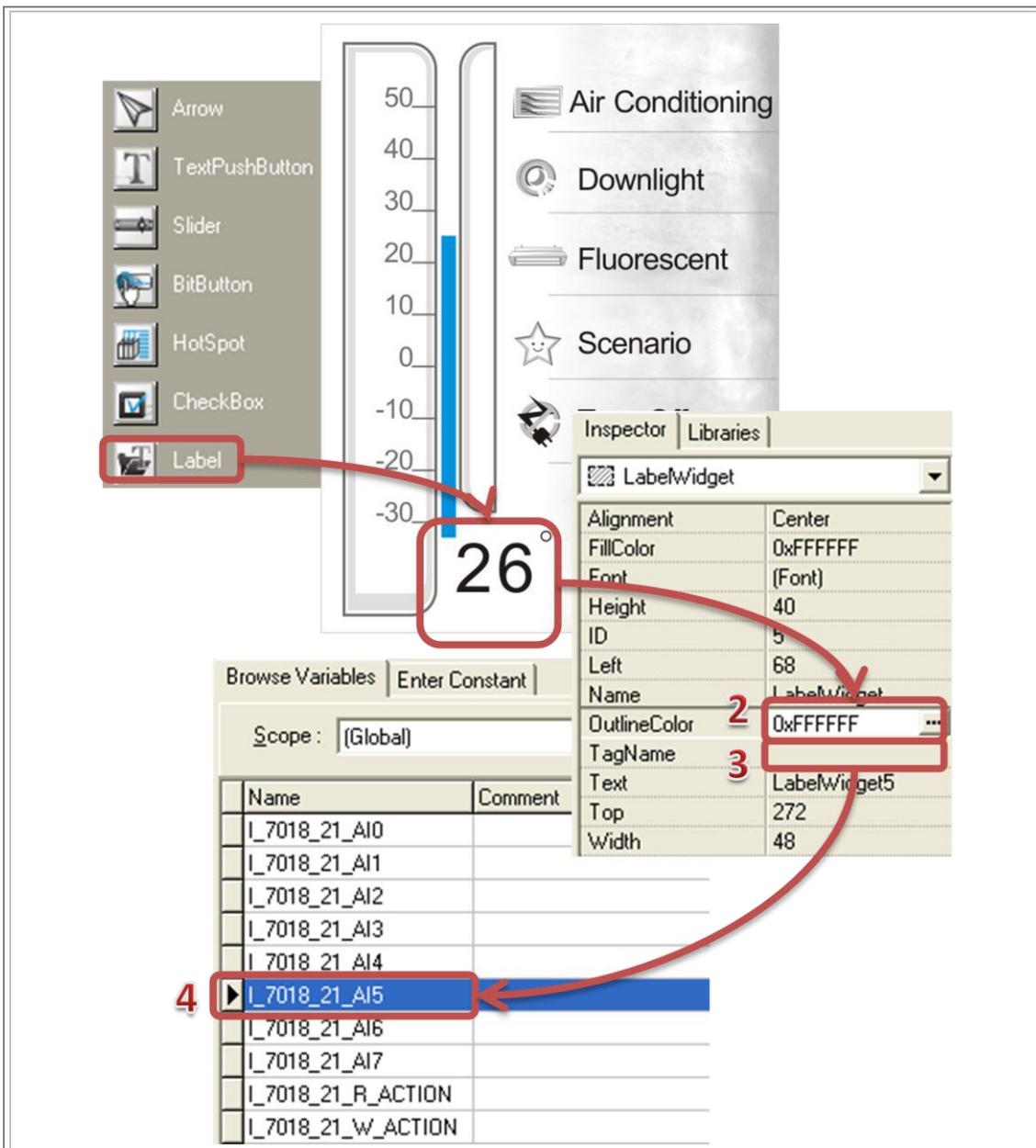
4. Double click Picture component, the click button "Load" to load a background picture into TouchPAD as background.



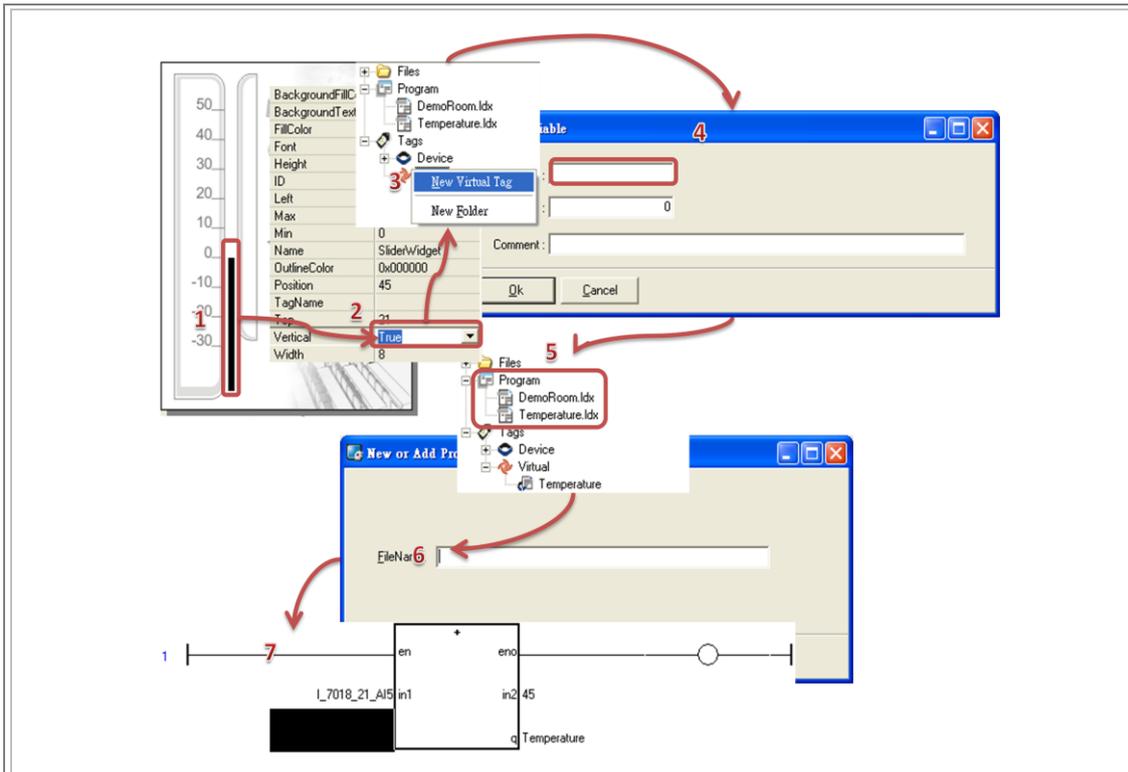
5. In the WorkSpace, right click on the Device item to add a new device and then there shows a window. In the window, choose Device Type as I7K, set Baud Rate to 9600, Data Bit to 8, Parity to 0, Stop Bit to 1, I7k Type as I-7018 and Net ID to 21. (The above setting is suggested. These settings are used in the amphitheater classroom of ICP DAS.) Finally, click the button "Add Tags" to show the tags. Save the results and leave.



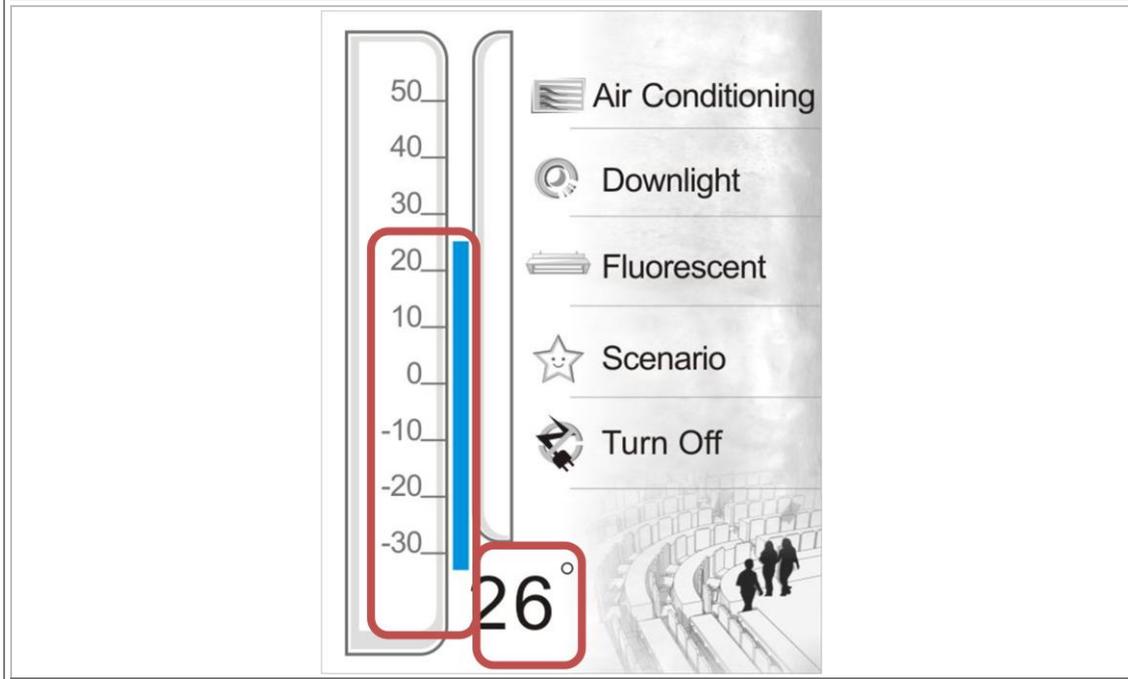
6. In the Widget list, choose Label component and put it on the canvas area to show the temperature. Change the OutlineColor of the Label in the inspector and make connection with I/O module by TagName property. Double click on the right side button of TagName property and there shows "Select variable" window. Double click on the AI channel which measures the temperature to make connection with the Label. As the below figure shows.



- In the Widget list, choose Slider component. Put the Slider in the position beside the calibrations and then set Vertical property to true as thermometer. In the WorkSpace, right click on the Virtual item to add a new Virtual Value, Temperature. And then right click on the Program item to add a new Program, Temperature. Double click on Temperature(Program) to design Ladder Diagram.



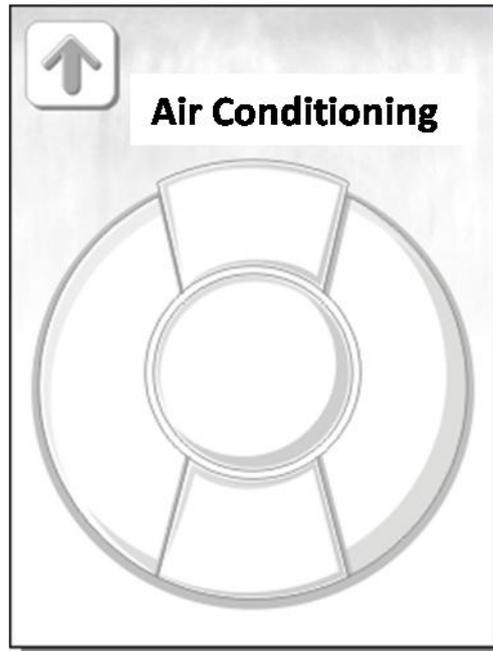
8. Build the project and download to the TouchPAD. As the following figure shows.



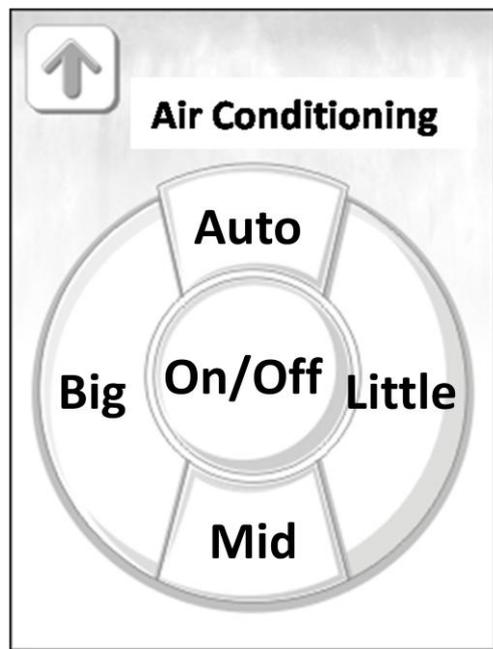
Air Conditioning of DemoRoom

1. Load the background picture to the canvas area and add a new Program,

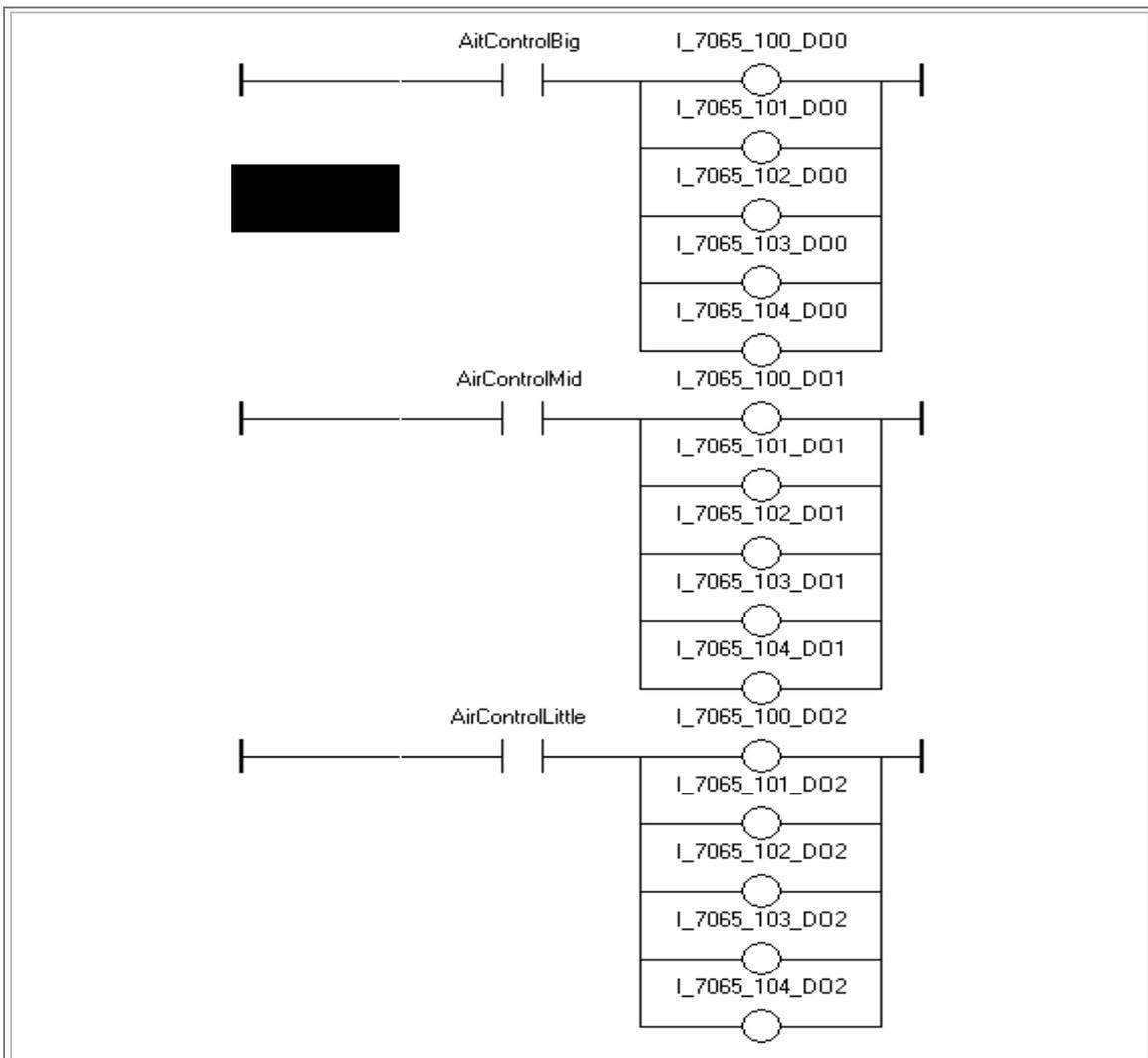
AirCondition.



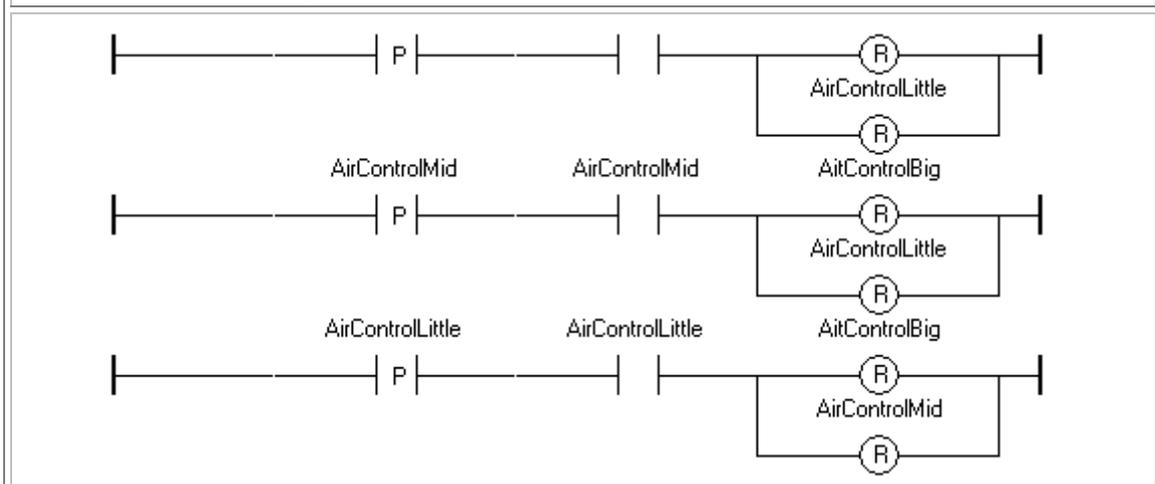
2. Add five Virtual Values: AirControlBig, AirControlMid, AirControlLittle, AirCondition, and AirControl as volume big, mid, little, power switch, and auto temperature control, respectively. Then make those words into pictures of two states and Add to Library. Finally, select the corresponding pictures in the ObjectList.



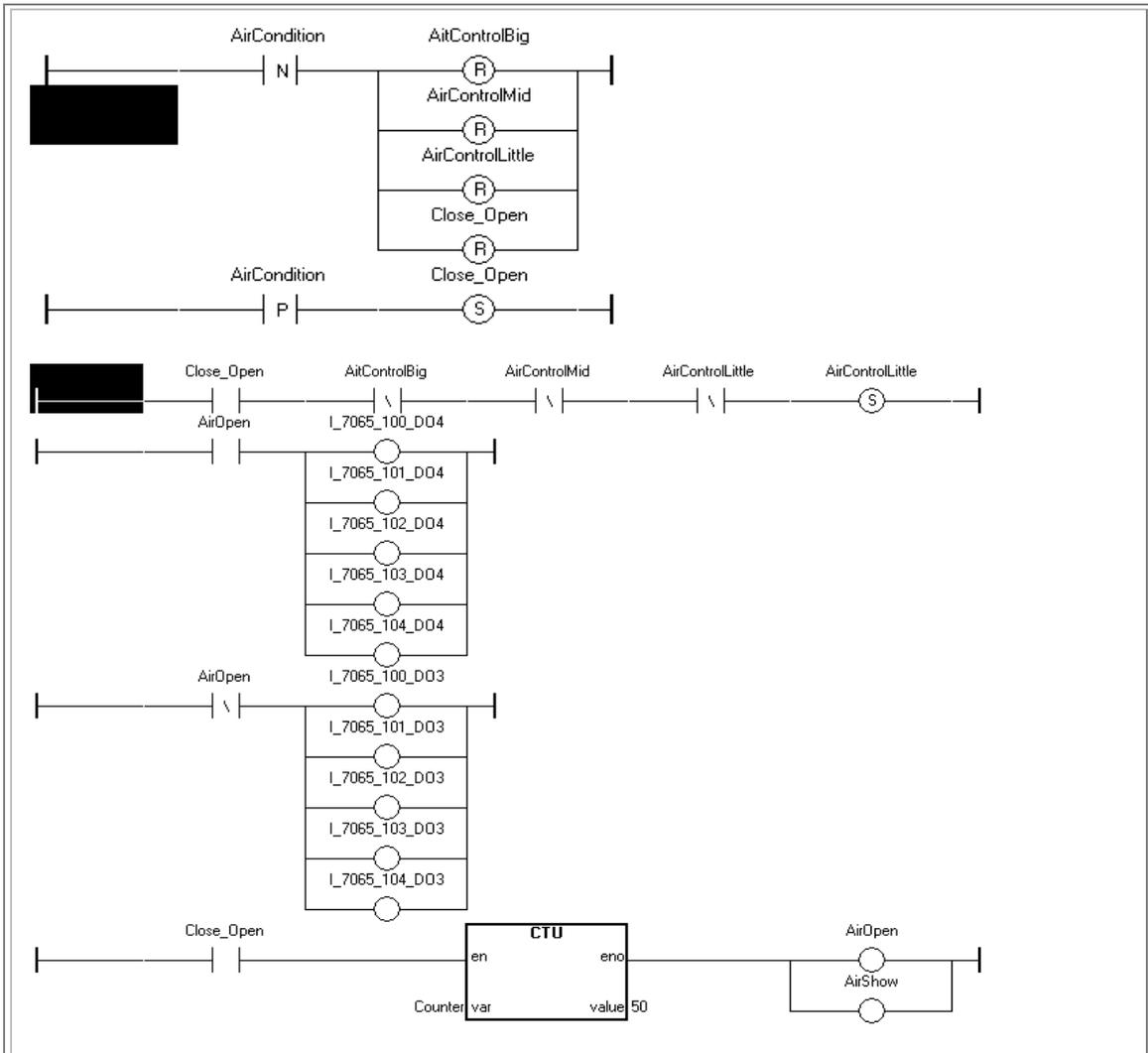
3. In the AirCondition(Program), draw the Ladder Diagram as below for wind volume control.



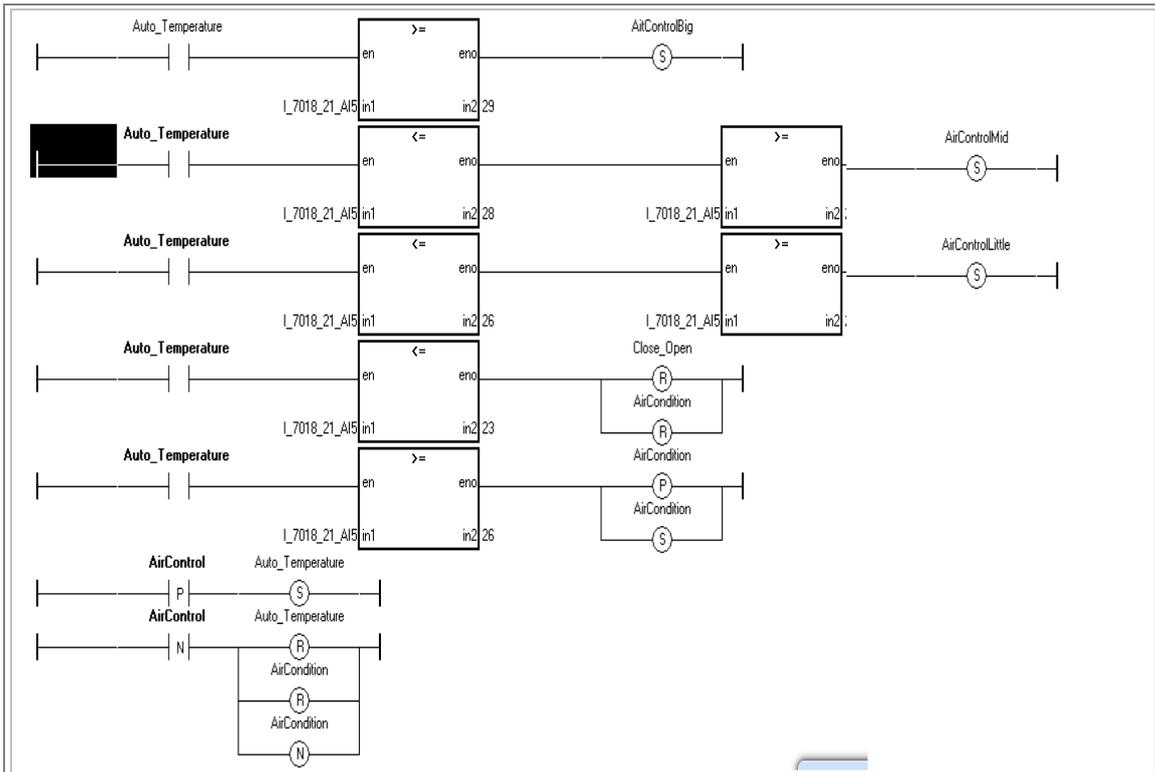
4. In the AirCondition(Program), draw the Ladder Diagram as below for wind volume switching.



5. Add two new Virtual Value, Close_Open and AirOpen as power switch for air conditioner. And build its corresponding Ladder Diagram.



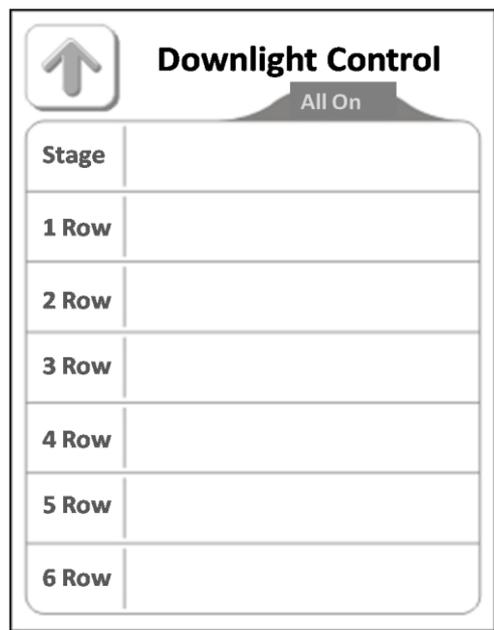
6. In the AirCondition(Program), draw the Ladder Diagram for automatical temperature control.



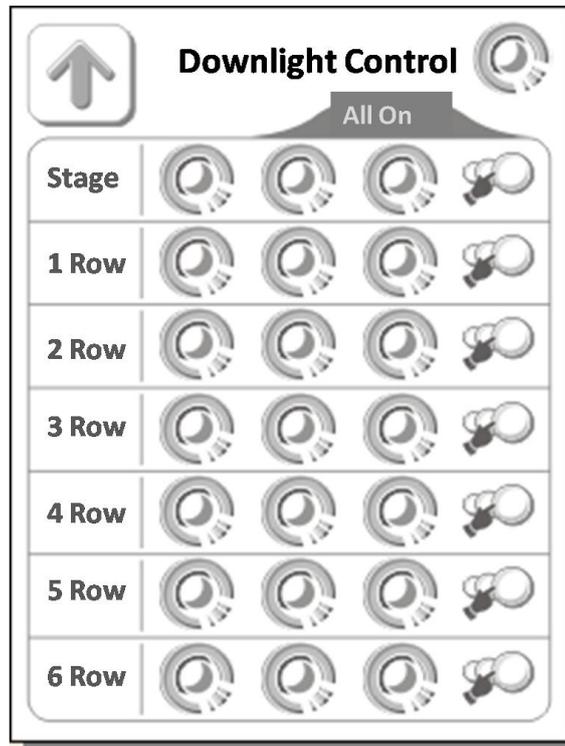
7. After finishing Ladder Diagrams for air conditioning, download the program to TouchPAD, and TouchPAD can control the air conditioners.

Downlight Control of DemoRoom

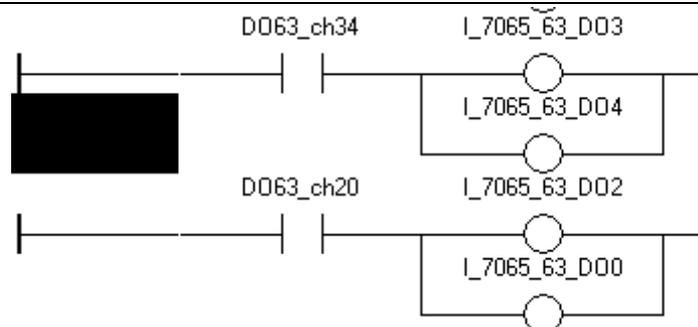
1. Load the background picture to the canvas area and create a new Program, DownLight.



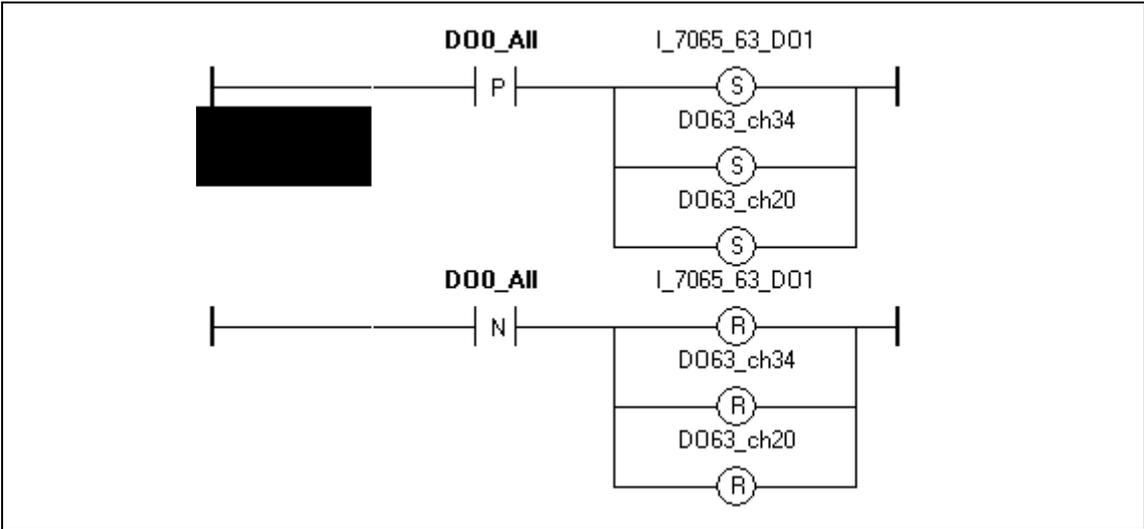
2. Draw pictures to represent downlights and then Add to Library. Put CheckBoxes on the positions which are the positions of downlight pictures and select corresponding pictures in the ObjectLists which are set to RefObject property of CheckBoxes.



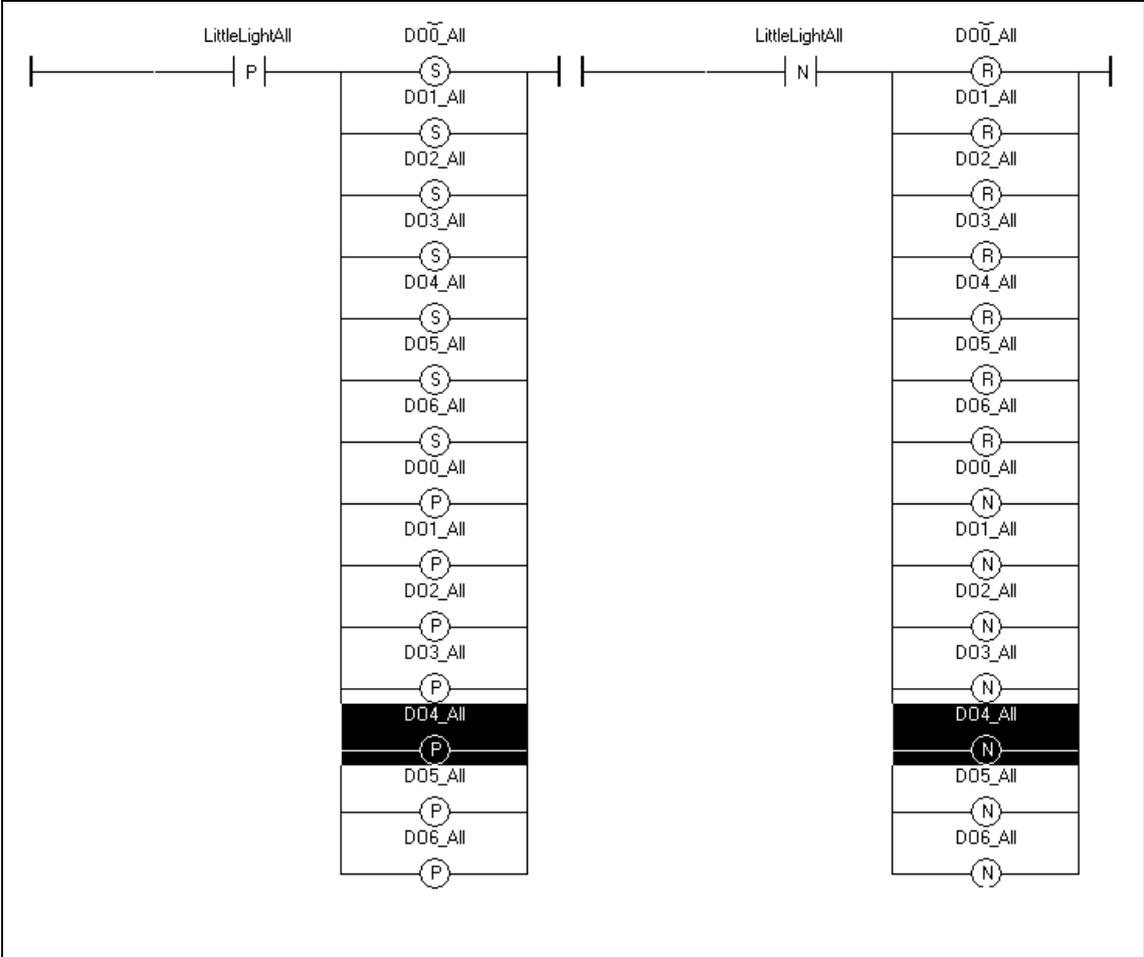
3. Because downlight control of each row is the same, here we take the row of the stage for example. In the DownLight(Program), draw the Ladder Diagram for the stage downlights. As below shows, two virtual values are used to control four Dos and each control two Dos. The first light icon in the stage row is corresponding to the first virtual value, that is DO63_ch34, and the second icon is corresponding to the second virtual value. Though, the third icon is not shown in the ladder diagram, it corresponds to other DO.



4. Add a new Virtual Value, DO0_All, to control all the downlights of the stage row and draw its Ladder Diagram.



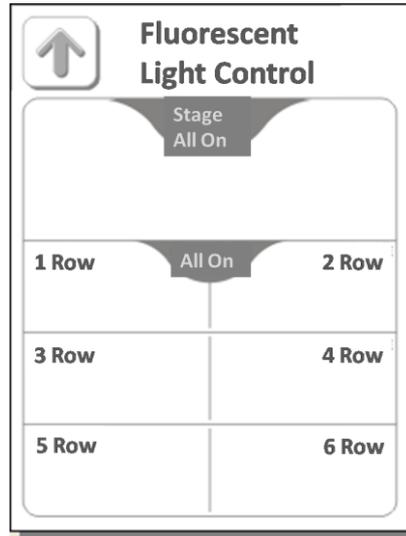
5. Add a new Virtual Value, LittleLightAll, to control all the downlights in the amphitheater classroom and draw its Ladder Diagram.



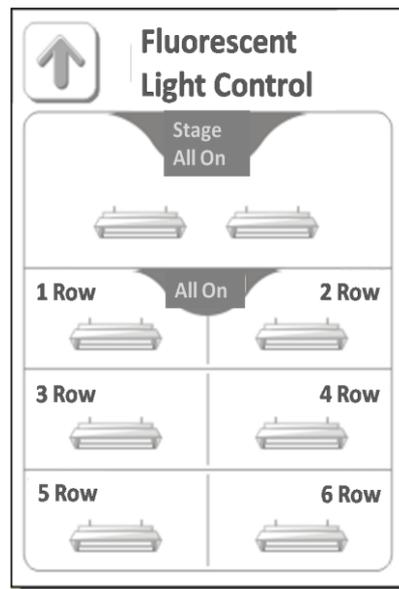
6. After finishing Ladder Diagrams for downlight control, download the program to TouchPAD, and TouchPAD can control the downlights.

Fluorescent Light Control of DemoRoom

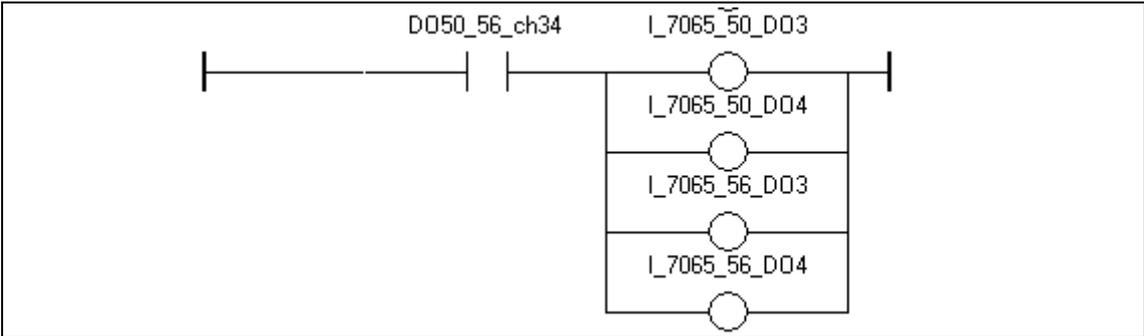
1. Similar to downlight control, load the background picture on the canvas area and create a new Program, Fluorescent lamp.



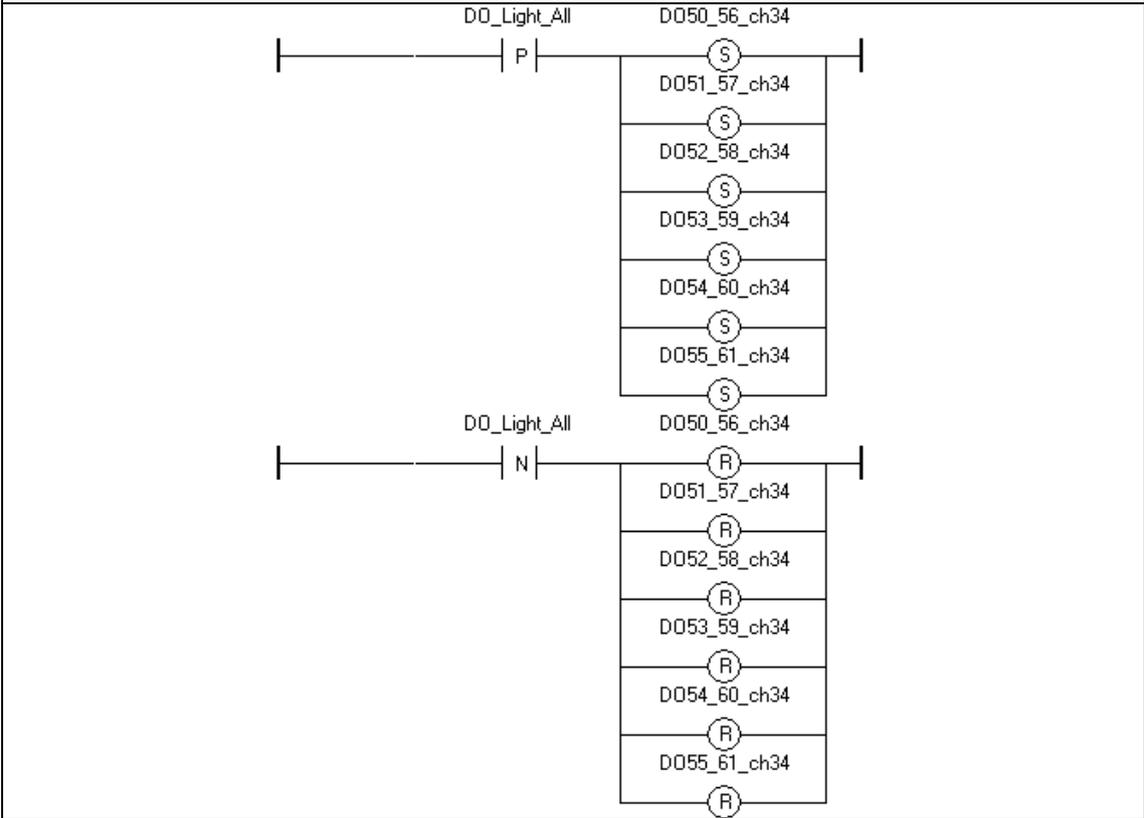
2. Draw pictures to represent fluorescent lights and then Add to Library. Put CheckBoxes on the positions which are the positions of fluorescent lights pictures and select corresponding pictures in the ObjectLists which are set to RefObject property of CheckBoxes.



3. Because fluorescent light control of each row is the same, here we take the first row for example. In the Fluorescent lamp (Program), draw the Ladder Diagram for the first row as below shows.



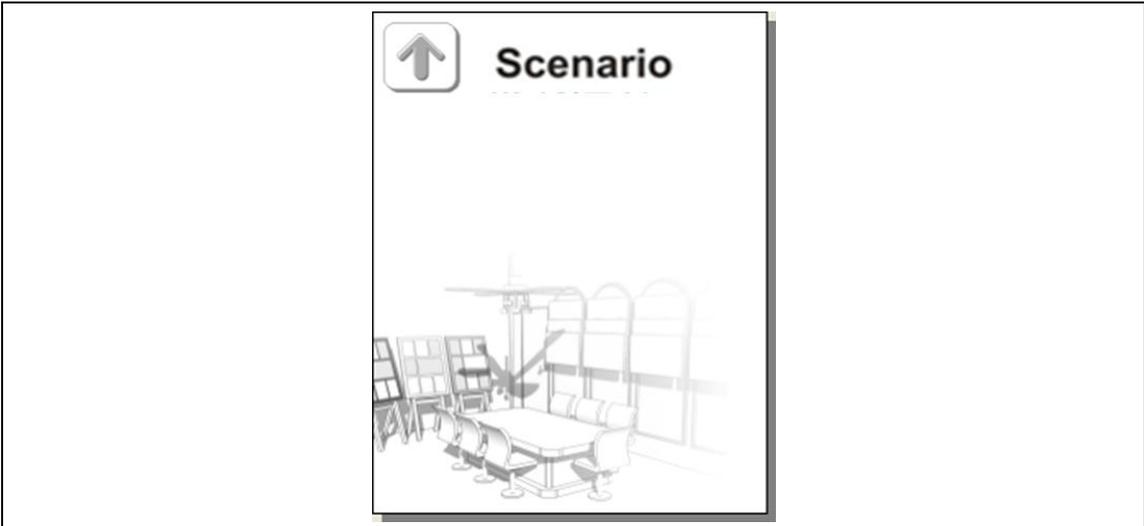
4. Add a new Virtual Value, DO_Light_All to control all the fluorescent lights and draw its Ladder Diagram.



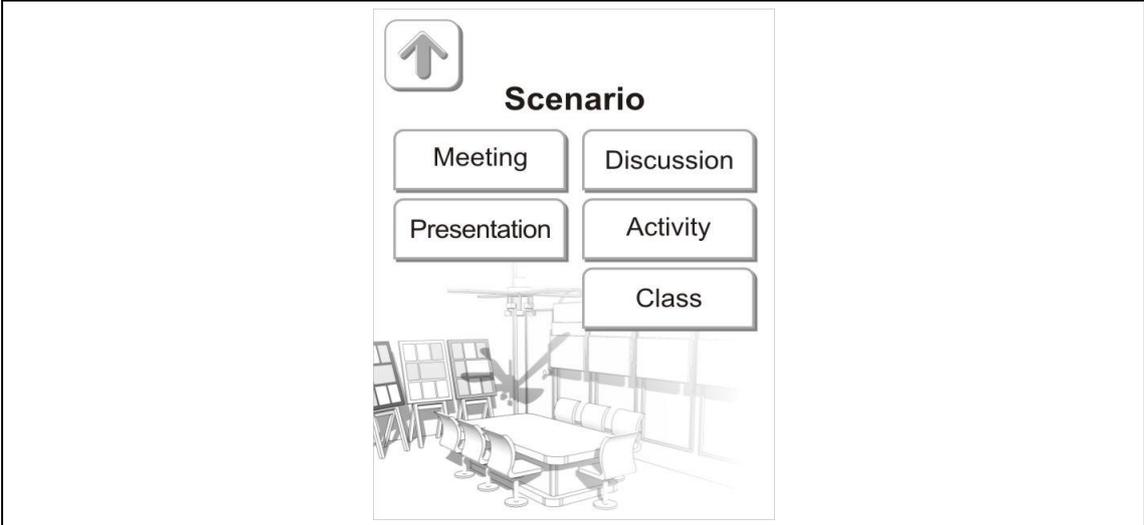
5. After finishing Ladder Diagrams for fluorescent light control, download the program to TouchPAD, and TouchPAD can control the fluorescent lights.

Scenarios of DemoRoom

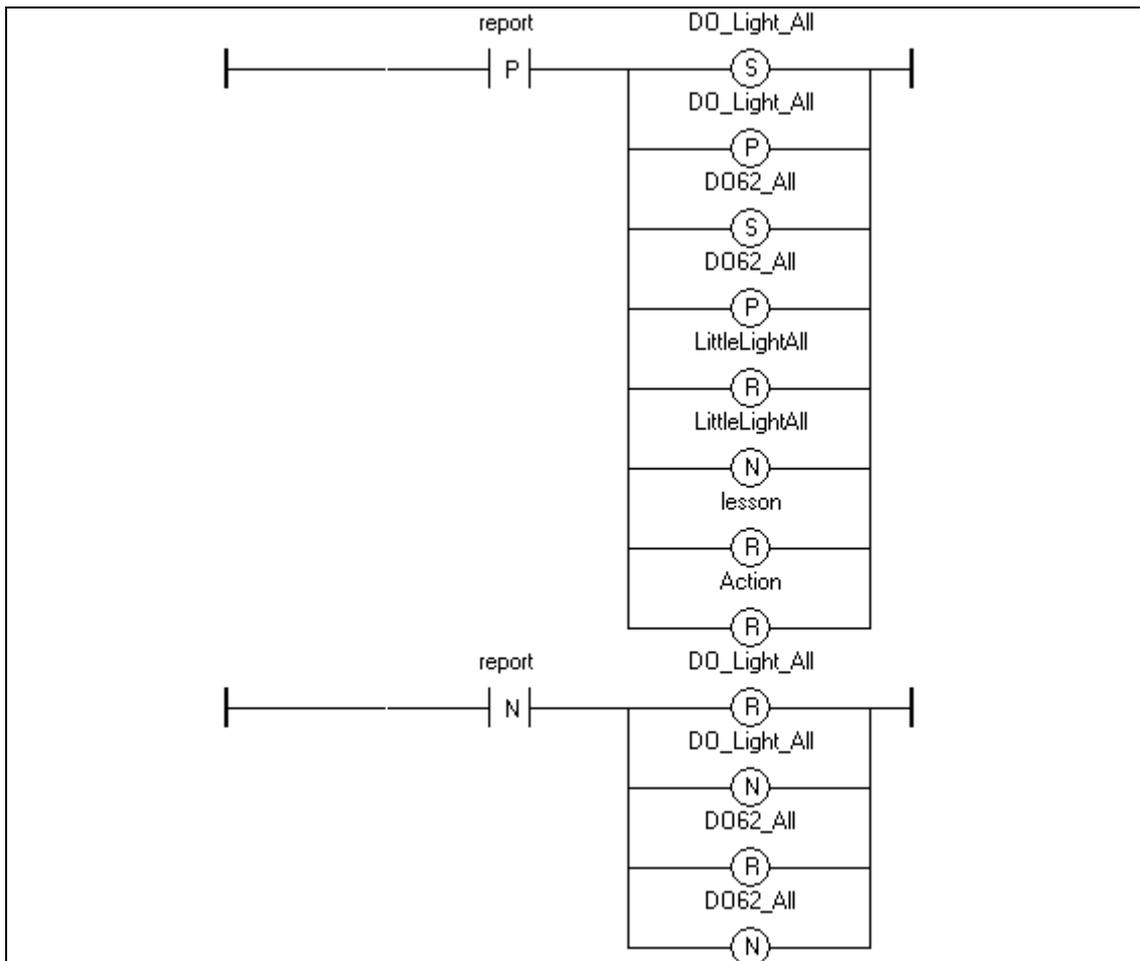
1. Load the background pictures to the canvas area and create a new Program, Environment.



2. Draw pictures to represent scenario options and then Add to Library. Put CheckBoxes on the positions which are the positions of scenario option pictures and select corresponding pictures in the ObjectLists which are set to RefObject property of CheckBoxes.



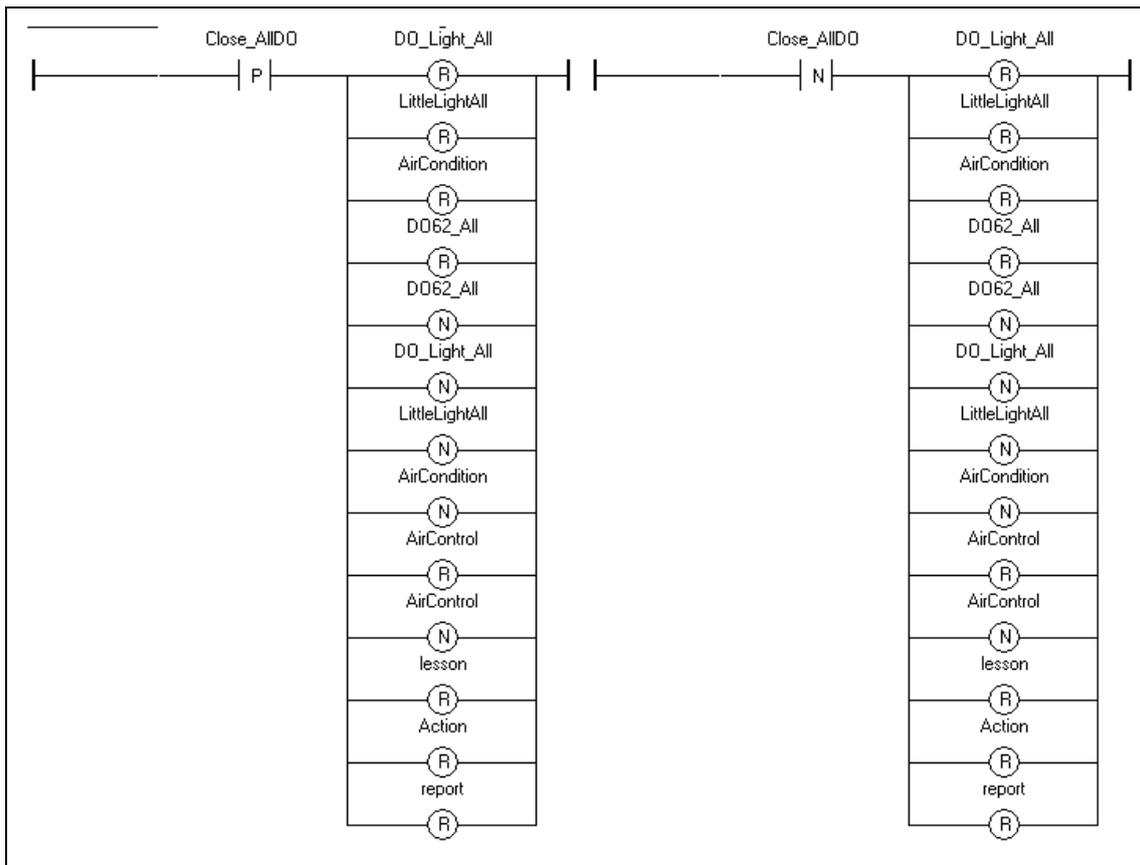
3. Take Presentation scenario for example. Add a new Virtual Value, report and its Ladder Diagram.



4. After finishing Ladder Diagrams for presentation scenario, download the program to TouchPAD, and TouchPAD can control the group of lights which is set in the Ladder Diagram of presentation scenario.

Turn All Off, DemoRoom

1. This example demonstrates using a button to turn off all of the lights. "Turn All Off" button is on the first page. It is designed for users to turn off all the lights, air conditioners, etc. when leaving the amphitheater classroom. Similar to above examples, create the button and its Ladder Diagram.



2. After finishing Ladder Diagrams for Turning all off, download the program to TouchPAD, and TouchPAD can turn off all the lights and air conditioners.

Conclusion

Follow the above steps to have a TouchPAD-controlled classroom. To realize additional effects, users can add their own ladder logics for them.