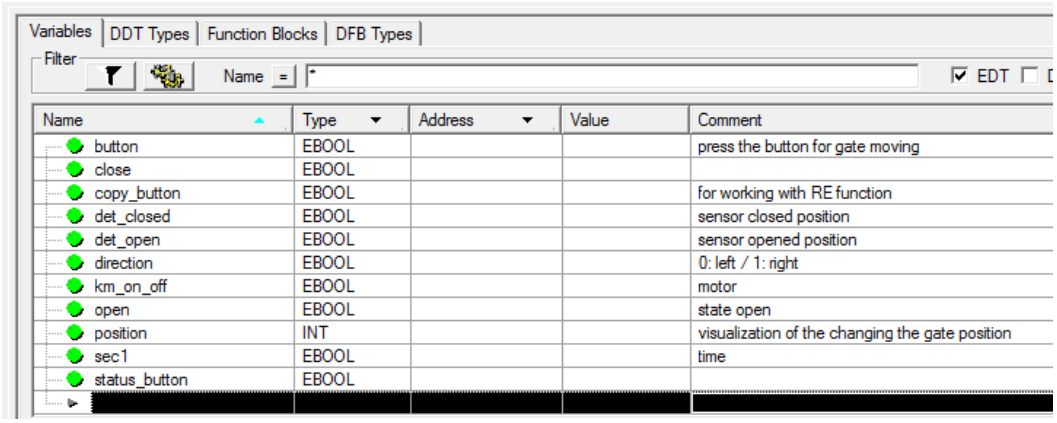
Practice work №7
Programming of the "gate working" in automatically mode

Task 1. It is necessary to program the opening and closing garage doors automatically in "auto mode".

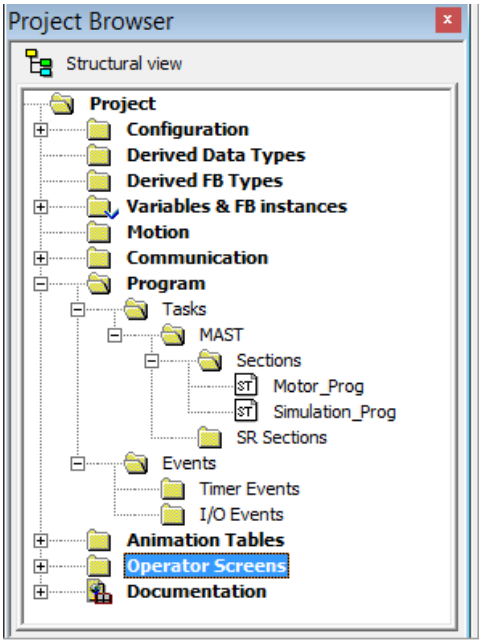
Example of solution:

Step 1. Create the variables of the program.



Name	Type	Address	Value	Comment
button	EBOOL			press the button for gate moving
close	EBOOL			
copy_button	EBOOL			for working with RE function
det_closed	EBOOL			sensor closed position
det_open	EBOOL			sensor opened position
direction	EBOOL			0: left / 1: right
km_on_off	EBOOL			motor
open	EBOOL			state open
position	INT			visualization of the changing the gate position
sec1	EBOOL			time
status_button	EBOOL			

Step 2. Create the sections for control the gate position.



Listing of the program:

```
(* Direction and KM management *)
if close then
  direction:=1;
  km_on_off:=1;
```

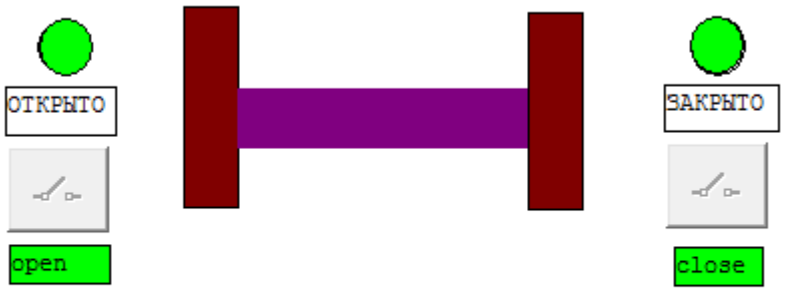
```
end_if;
if open then
  direction:=0;
  km_on_off:=1;
end_if;
if not(close) and not(open) then
  km_on_off:=0;
end_if;
(* Open/Close management*)
copy_button:=button;
if close and RE(copy_button) then
  close:=0;
  open:=1;
end_if;
if RE(copy_button) and det_open then
  close:=1;
end_if;
if det_closed then
  close:=0;
end_if;
if RE(copy_button) and det_closed then
  open:=1;
end_if;
if det_open then
  open:=0;
end_if;
```

Step 3. Create the section for simulation management. Listing of the program:

```
 (* Simulation management *)
sec1:=%S6;
if (direction and km_on_off) then
  if re(sec1) then
        position:=position + 1;
  end_if;
end_if;
if (not direction and km_on_off) then
  if re(sec1) then
        position:=position - 1;
  end_if;
end_if;

det_open:=(position=0);
det_closed:=(position=10);
```

Step 4. Create the visualization screen in Unity Pro.



Step 5. Verification and testing of the program.

REPORT:

The results of working should be describes in the reports in following form:

1. Theme of works;
2. Task and solving in Unity Pro;
3. Table of the variables with data types;
3. Visualization of the program;
4. Conclusion.
5. Reference (if it's need).

REMARK 1. Practice work should be created according the STANDARDS of KBTU for writing works.

TOTAL MARKS - 3 POINT