



EEE3506 Programmable Logic Controllers
Project Report

Name: Yunus Emre KUNT
ID: 200702056

Instructor: Fatma Yıldız TAŞCIKARAOĞLU

Water Purification Automation

Why This Project is Vital:

Water will become one of the biggest problems of the rapidly increasing human population, and it is important to protect it and make it sustainable. I would like to make faster this process by automizing all of this process to provide this problem.

In my Project as you will see we will obtain consumable water as a result of a number of processes.

So let's talk about this process

Process For Water Purification:

- 1-Dirty water comes into the grills and it is removed from solid dirt (plastic bags, cardboard, aluminum etc.)
- 2- The water taken to another place to rest and clear small solids such as sand.
- 3- The water is sent to the bacterial pool to be purified from nitrogen.
- 4- The water taken to another place is rested and cleared again.
- 5- The water is kept in a large pool for the last time and then becomes completely purified.
- 6- Wastes is removed from the facility after pressed(Belt filter press works for 3 times by using its output)

-Nitrification and Denitrification Bacterias are very important fort his facilities. They provide bad smell because of the nitrogen by oxidizing this nitrogens. The final NO₂ goes to the atmosphere so that we can reach the more purificated water.

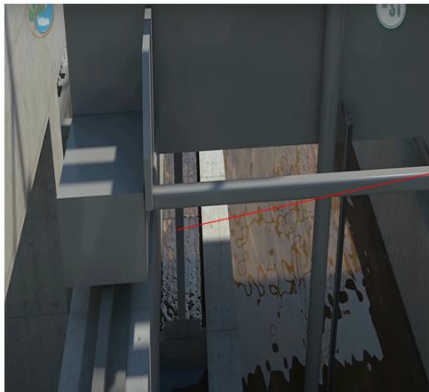
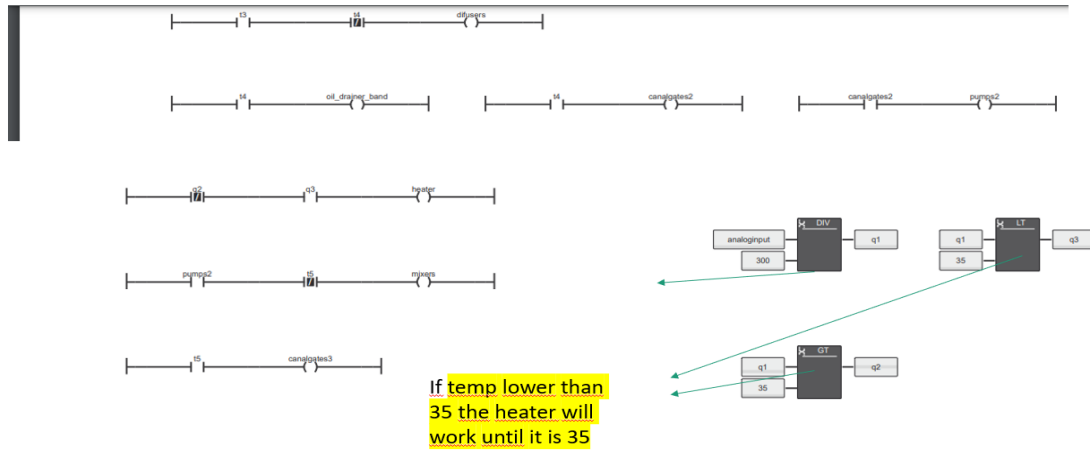
But this bacterias dies in a oxygenated environment because of that we have to be sure keeping this places unoxigenated.

Lastly, optimal temperature value is 35C degrees for this bacterias.

Materials we used:

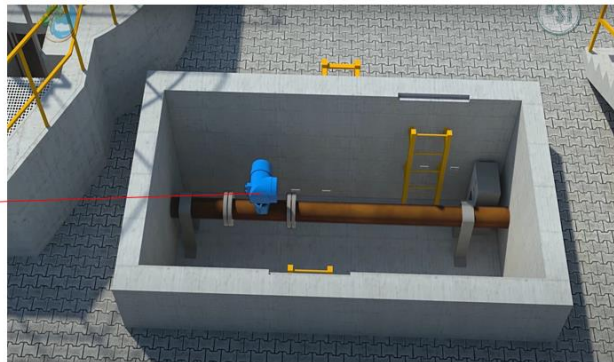
Buttons, Difusers, Pullovers, Pressure sensor, Servos, Valves, Pumps, Temperature Sensor

From Resting Area to Purification by Bacteria

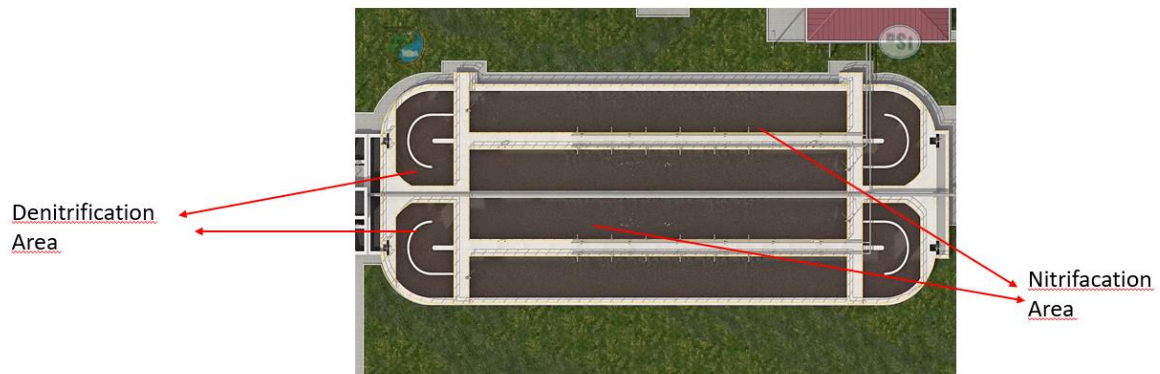


Oil Drainer Band(Oils separated from water are transported from here)

Pumps

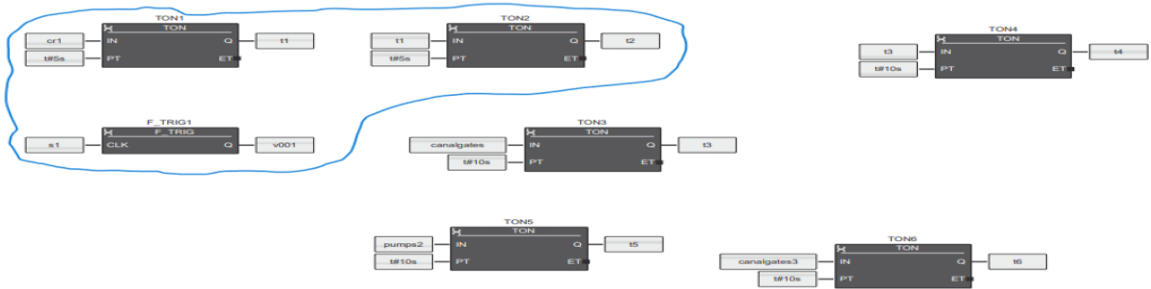
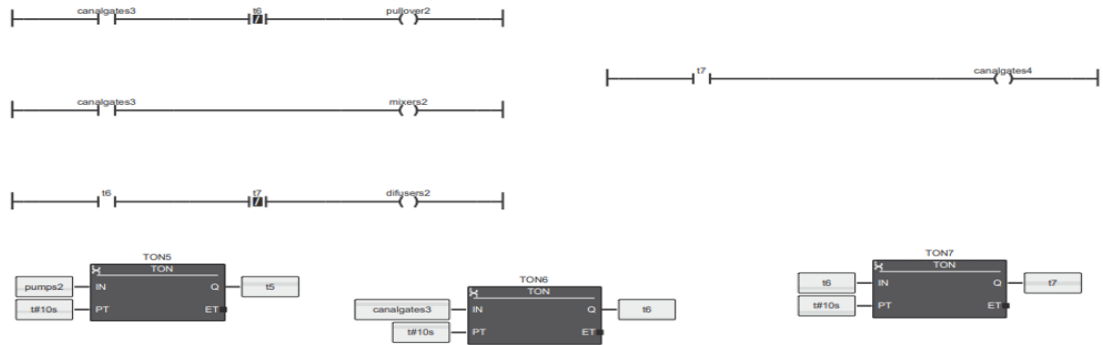


Purification by Bacteria

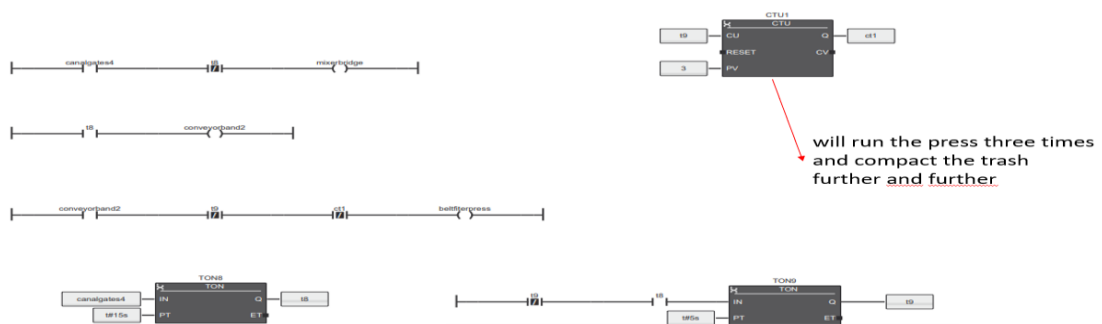


- Optimum Temperature for the Bacteria is 35 degree Celsius

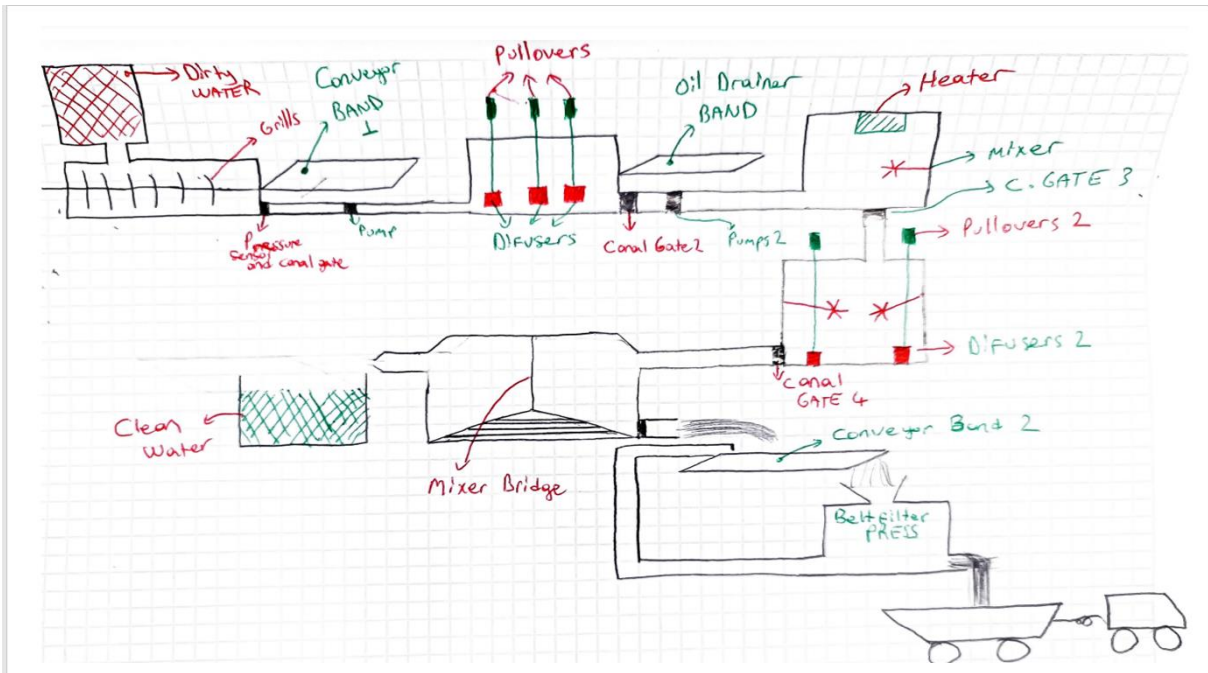
From Bacteria to The Resting Area 2



Last Part MixBridge and BeltFilterPress



Handmade Picture For The Process



Variables For This Project

Components / New Program / Variables										
Default										
Name	Type	Usage	Translate	Comment	Init	Retain	Constant	OPC	HMI	ProfiCloud IQ
cr1	BOOL	Local								
start	BOOL	External								
stop	BOOL	External								
TON1	TON	Local								
TON2	TON	Local								
I1	BOOL	Local								
I2	BOOL	Local								
F_TRIG1	F_TRIG	Local								
s1	BOOL	External								
id01	BOOL	Local								
fs1	BOOL	Local								
cleaninggrills	BOOL	Local								
conveyorbnd	BOOL	Local								
canalgates	BOOL	Local								
pumps	BOOL	Local								
TON3	TON	Local								
I3	BOOL	Local								
pulovers	BOOL	Local								
TON4	TON	Local								
diffusers	BOOL	Local								
I4	BOOL	Local								
oil_drainer_band	BOOL	Local								
canalgates2	BOOL	Local								
pumps2	BOOL	Local								
TON5	TON	Local								
I5	BOOL	Local								
mixers	BOOL	External								
TON6	TON	Local								
canalgates3	BOOL	Local								
I6	BOOL	Local								

fs1	BOOL	Local
cleaninggrills	BOOL	Local
conveyorbnd	BOOL	Local
canalgates	BOOL	Local
pumps	BOOL	Local
TON3	TON	Local
I3	BOOL	Local
pulovers	BOOL	Local
TON4	TON	Local
diffusers	BOOL	Local
I4	BOOL	Local
oil_drainer_band	BOOL	Local
canalgates2	BOOL	Local
pumps2	BOOL	Local
TON5	TON	Local
I5	BOOL	Local
mixers	BOOL	External
TON6	TON	Local
canalgates3	BOOL	Local
I6	BOOL	Local

	CONTACT GmbH & Co. KG 8 Germany	PHOENIX Flachmarktplatz 33825 Blomberg, Germany	sproject	2.01.2024
			PLCnext Engineer	Page 1

Achievements:

- Using more timer and how they trigger themselves
- Analog and Digital Inputs and where they can be used
- F-trigger and latching
- Counter usage
- Some kind of equipments recognized(Mixerbridge, difusers,pullovers,conveyors,grills,Gates,mixers,pressure and temperature sensors, BeltFilterpress)
- Presentation skills drilled