



TRƯỜNG ĐẠI HỌC  
BÁCH KHOA HÀ NỘI  
HANOI UNIVERSITY  
OF SCIENCE AND TECHNOLOGY

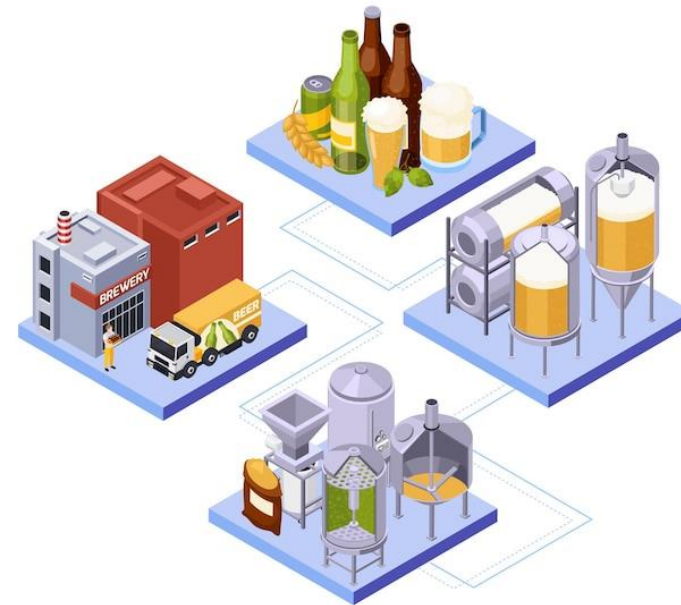
# PROJECT

## Clean in Place (CIP) Control System for Beer Factory

### Group 20

#	SI	Name
1	20192246	Nguyễn Phú Quyền
2	20192252	Phạm Tiến Thành
3	20192255	Nguyễn Trọng Tín
4	20200259	Nguyễn Huy Hùng

ONE LOVE. ONE FUTURE.





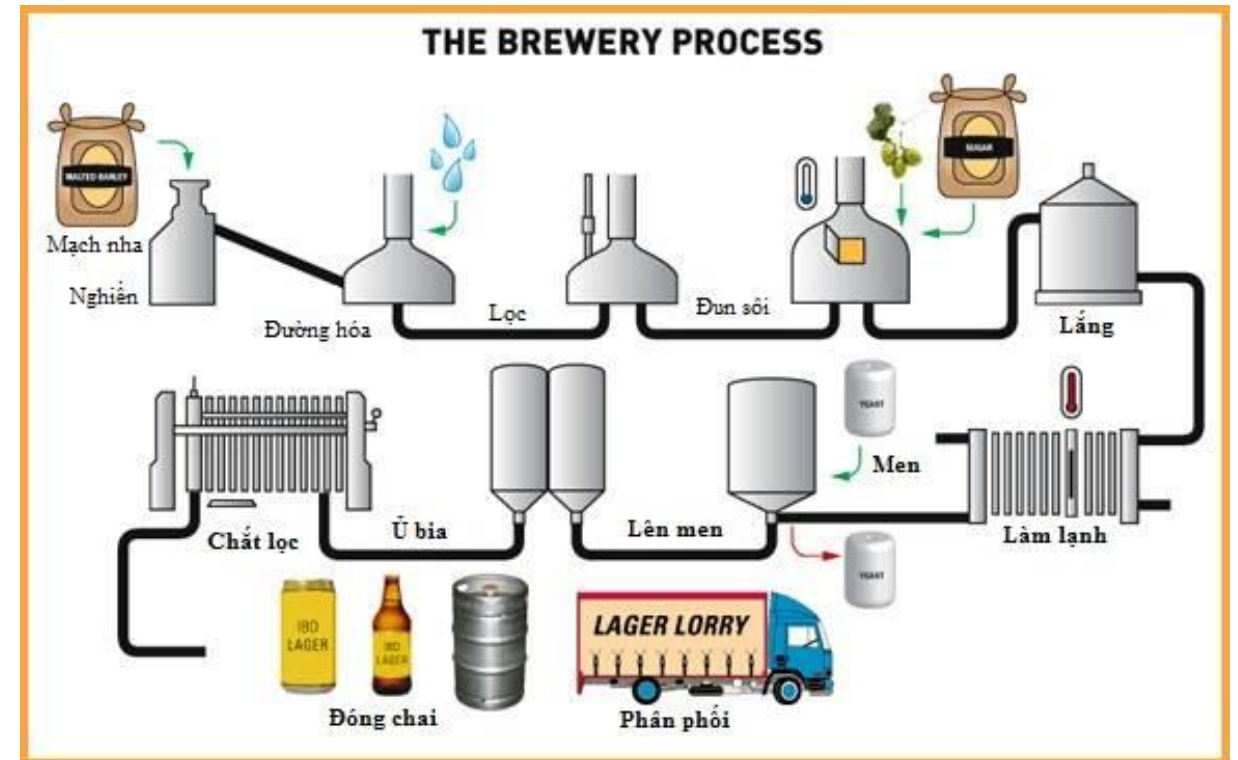
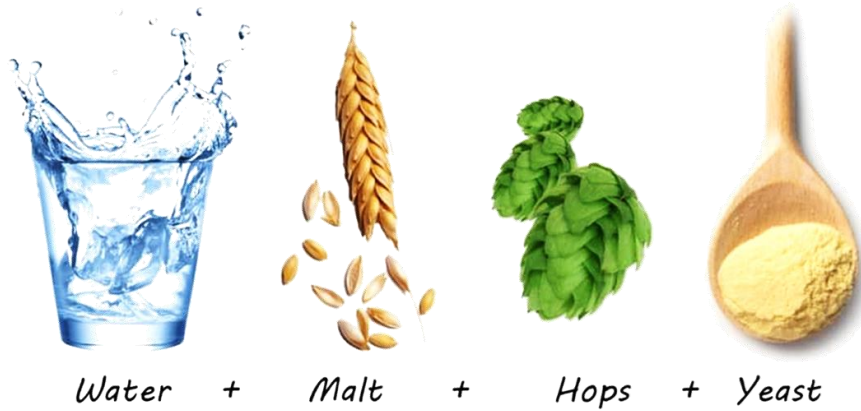
# HUST

**TRƯỜNG ĐẠI HỌC BÁCH KHOA HÀ NỘI**  
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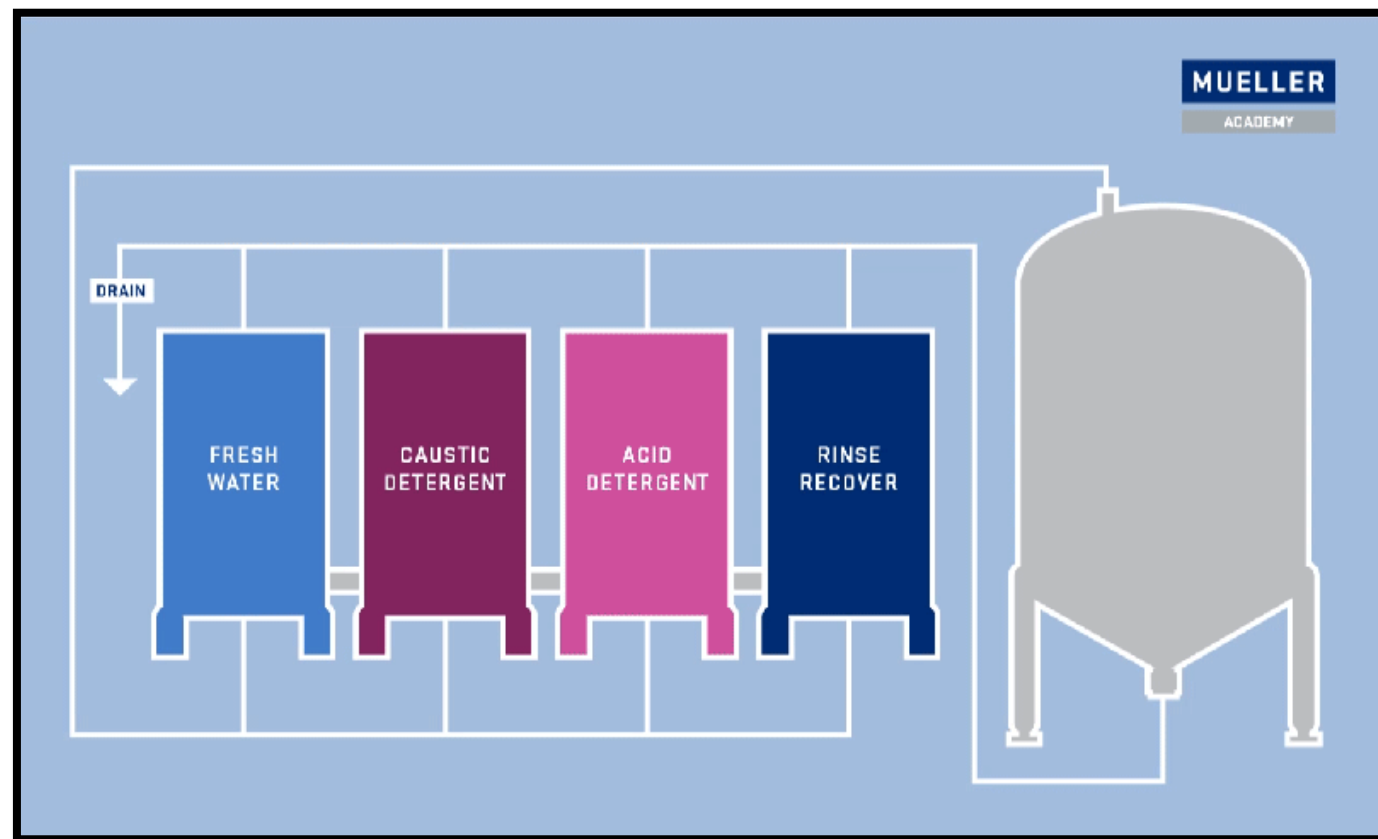
ONE LOVE. ONE FUTURE.

# I. Introduction

## WHAT'S BEER MADE OF



# I. Introduction



## II. System Design

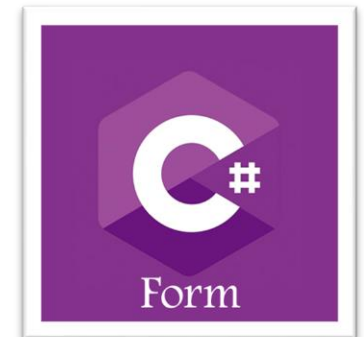
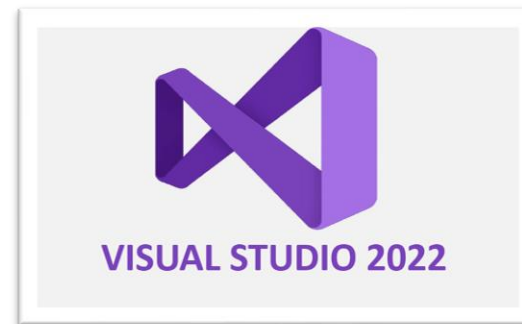
Layer structure	Technologies	Architecture			
Supervisory	Scada	Microsoft SQL Server	PC System	GUI	
Communication	ODBC, S7 NET, OPC				
Local Control	PLC, HMI	CPU	HMI		
Field	Sensors, Actuators	Level Sensor	Valves	Pumps	Motor



## II. System Design



















## II. System Design



# II. Control System

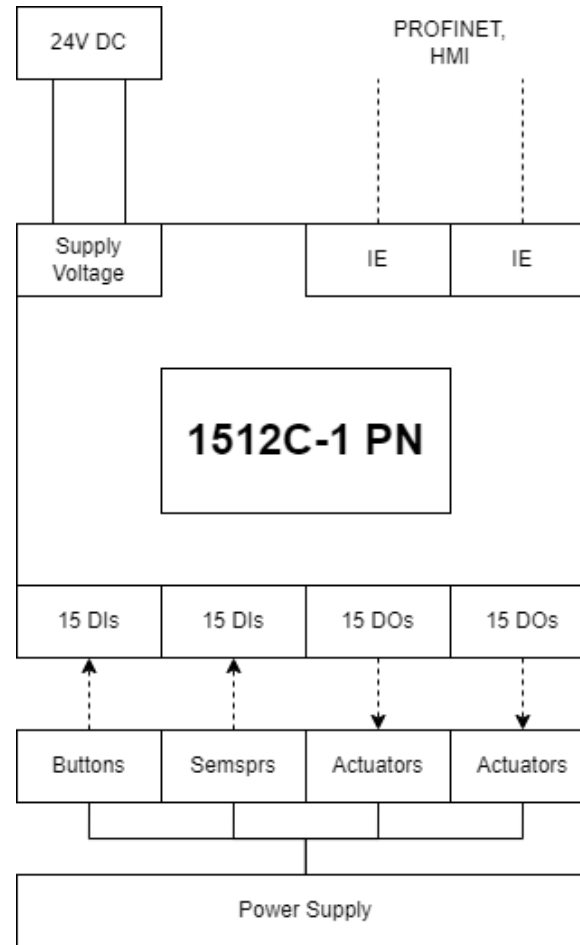
	Current CIP LOW	Bool	%I10.0	Sensors
	Current CIP HIGH	Bool	%I10.1	Sensors
	Caustic LOW	Bool	%I10.2	Sensors
	Caustic HIGH	Bool	%I10.3	Sensors
	Acid LOW	Bool	%I10.4	Sensors
	Acid HIGH	Bool	%I10.5	Sensors
	Water Low	Bool	%I10.6	Sensors
	Water High	Bool	%I10.7	Sensors
	Rinse Low	Bool	%I11.0	Sensors
	Rinse High	Bool	%I11.1	Sensors

	CIP Valve DRAIN	Bool	%Q4.0	Actuators
	CIP Valve SUPPLY	Bool	%Q4.1	Actuators
	CIP MOTOR	Bool	%Q4.2	Actuators
	Pump RECOVERY	Bool	%Q4.3	Actuators
	Pump SUPPLY	Bool	%Q4.4	Actuators
	Caustic Valve Source	Bool	%Q4.5	Actuators
	Caustic Valve Drain	Bool	%Q4.6	Actuators
	Caustic Valve Recovery	Bool	%Q4.7	Actuators
	Caustic Valve Supply	Bool	%Q5.0	Actuators
	Acid Valve Source	Bool	%Q5.1	Actuators
	Acid Valve Drain	Bool	%Q5.2	Actuators
	Acid Valve Recovery	Bool	%Q5.3	Actuators
	Acid Valve Supply	Bool	%Q5.4	Actuators
	Pump Caustic	Bool	%Q5.5	Actuators
	Pump Acid	Bool	%Q5.6	Actuators
	Pump Water	Bool	%Q5.7	Actuators

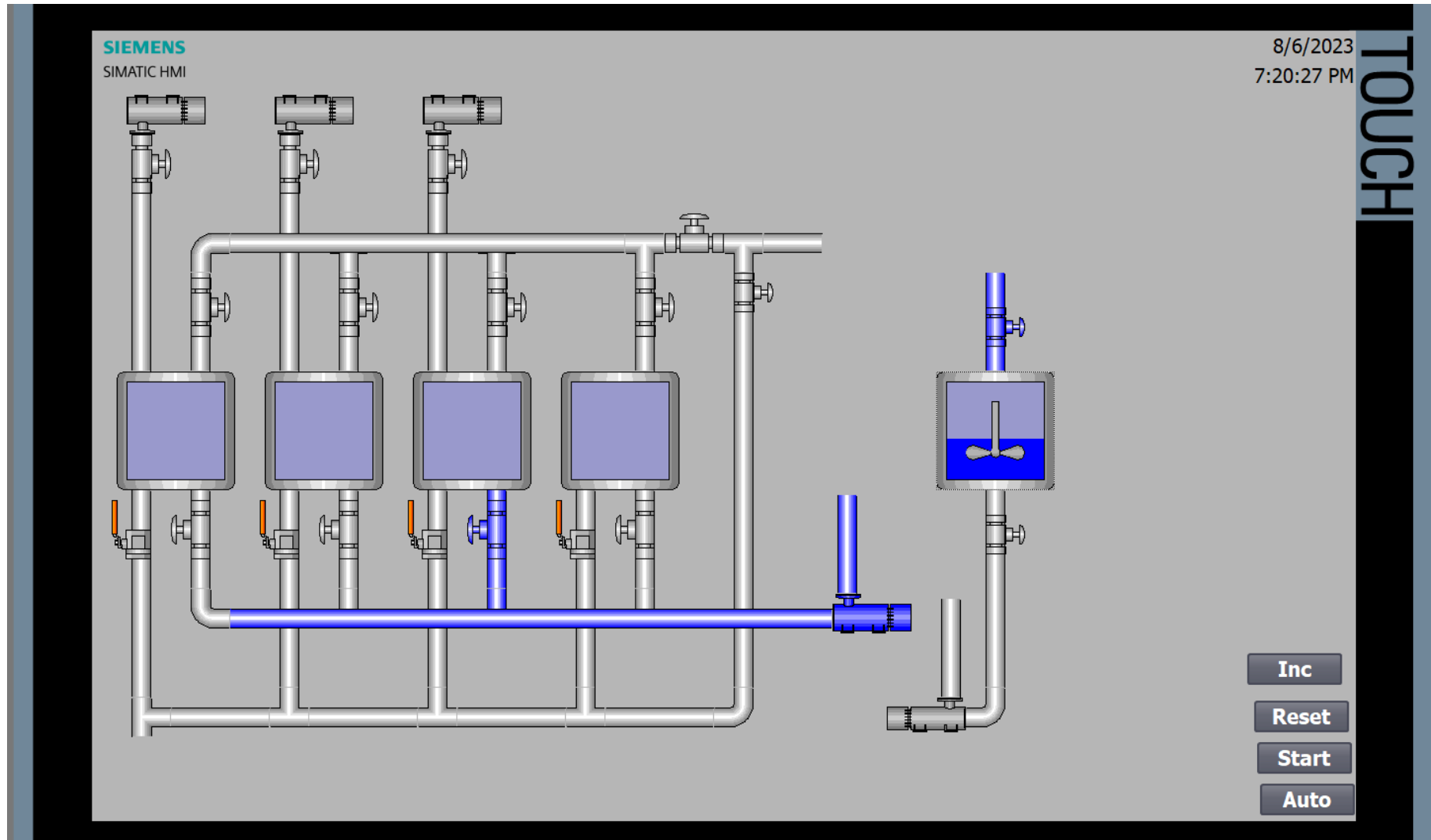
	Water Valve Source	Bool	%Q6.0	Actuators
	Water Valve Drain	Bool	%Q6.1	Actuators
	Water Valve Recovery	Bool	%Q6.2	Actuators
	Water Valve Supply	Bool	%Q6.3	Actuators
	Rinse Valve Drain	Bool	%Q6.4	Actuators
	Rinse Valve Recovery	Bool	%Q6.5	Actuators
	Rinse Valve Supply	Bool	%Q6.6	Actuators
	Line Supply Valve	Bool	%Q6.7	Actuators
	Line Recovery Valve	Bool	%Q7.0	Actuators
	Valve Ricec	Bool	%Q7.1	Actuators
	Valve Malt	Bool	%Q7.2	Actuators
	Valve Filter	Bool	%Q7.3	Actuators
	Valve Hops	Bool	%Q7.4	Actuators
	Valve Settling	Bool	%Q7.5	Actuators



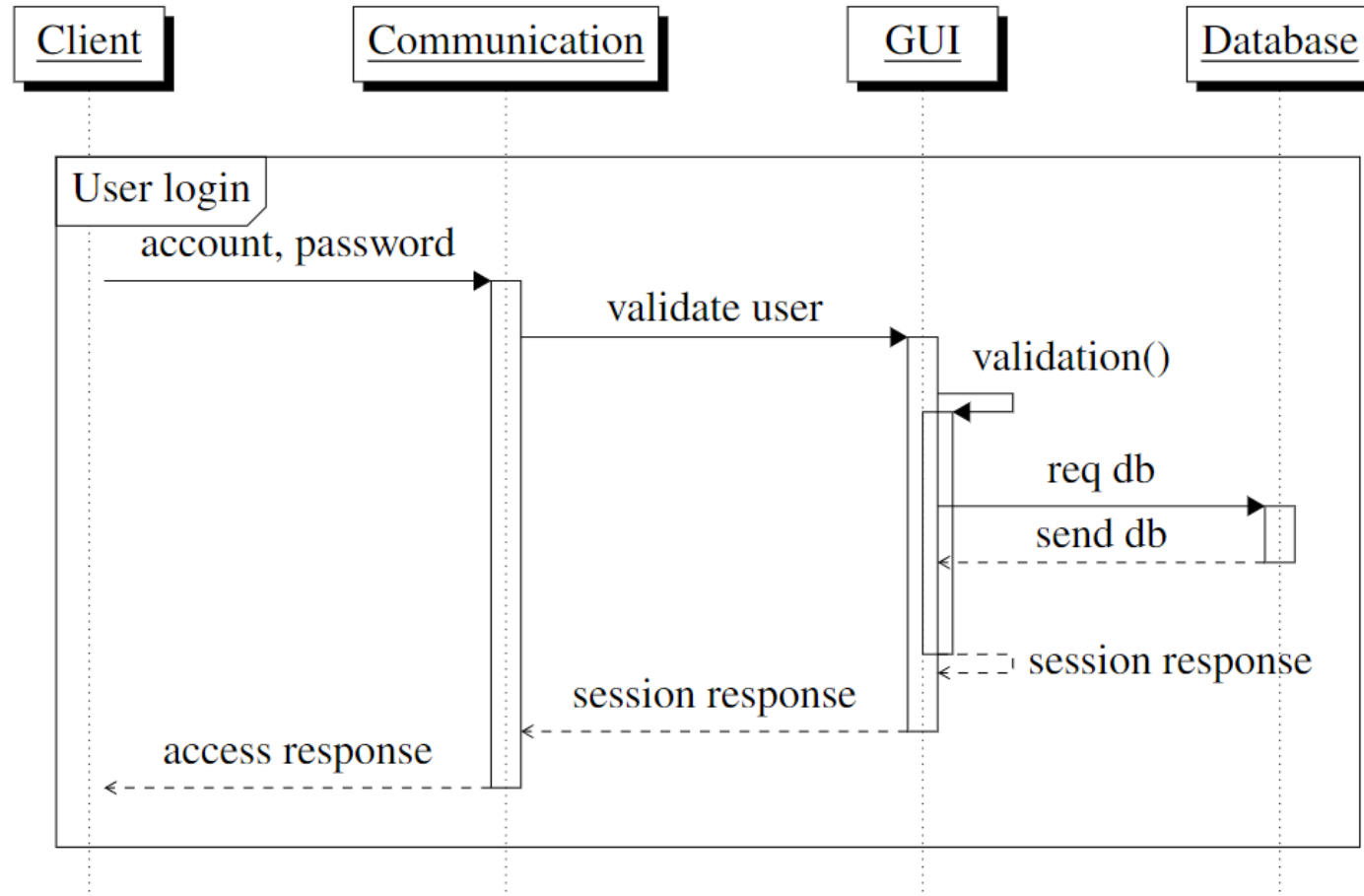
## II. System Design



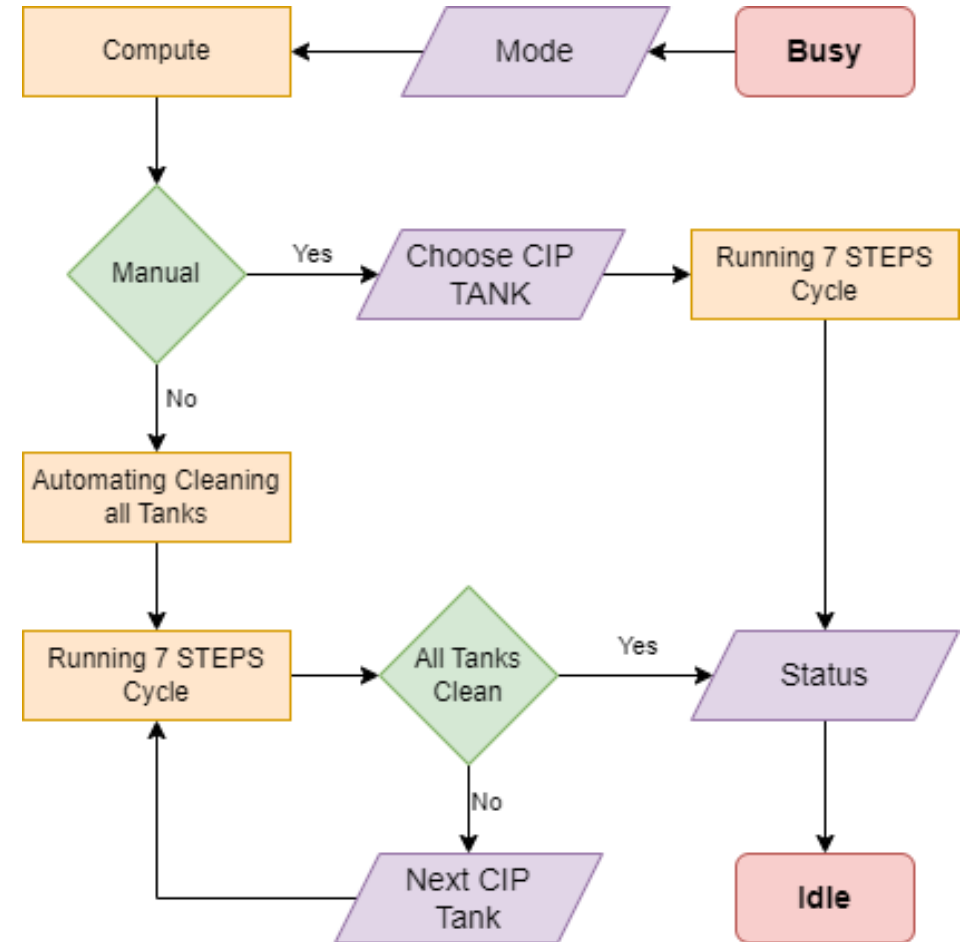
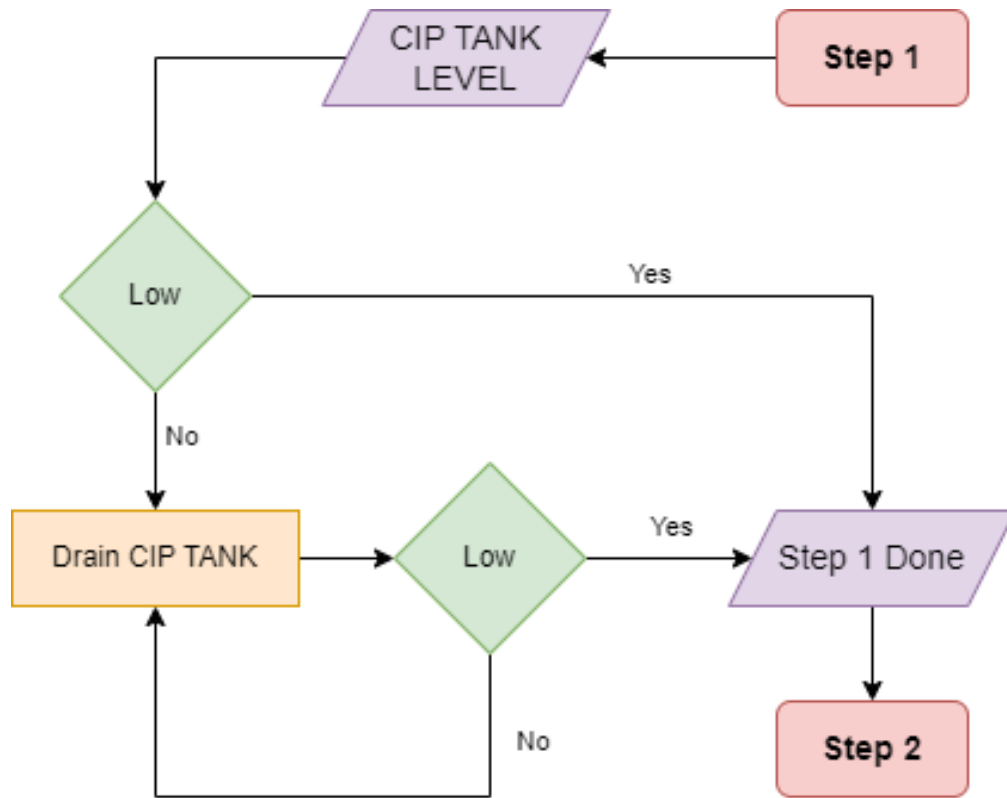
## II. Control System



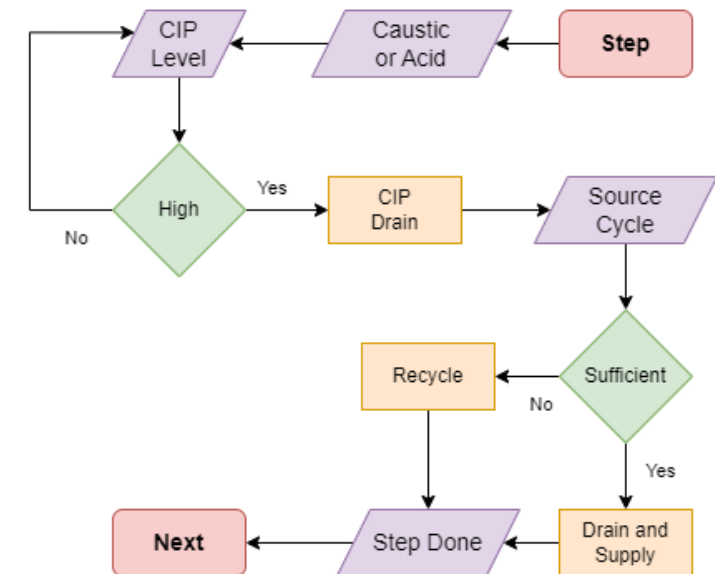
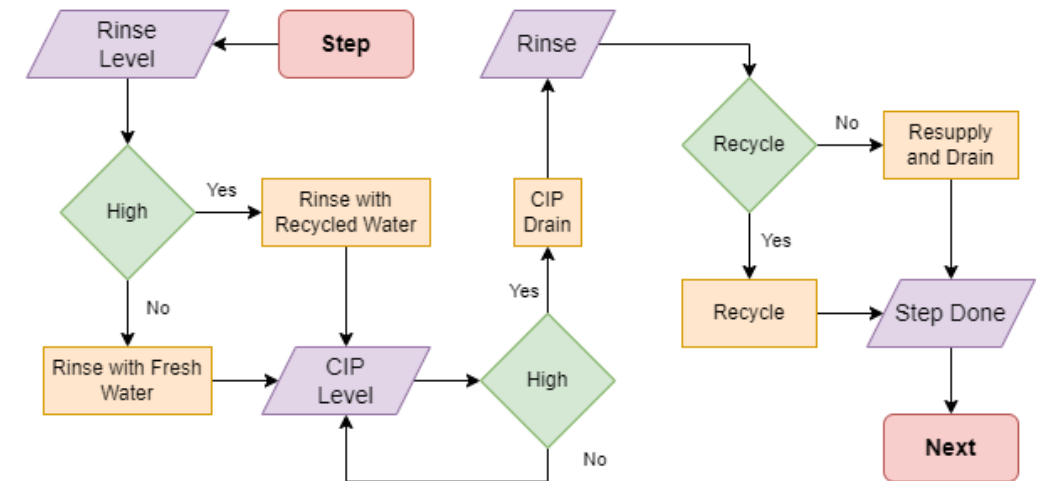
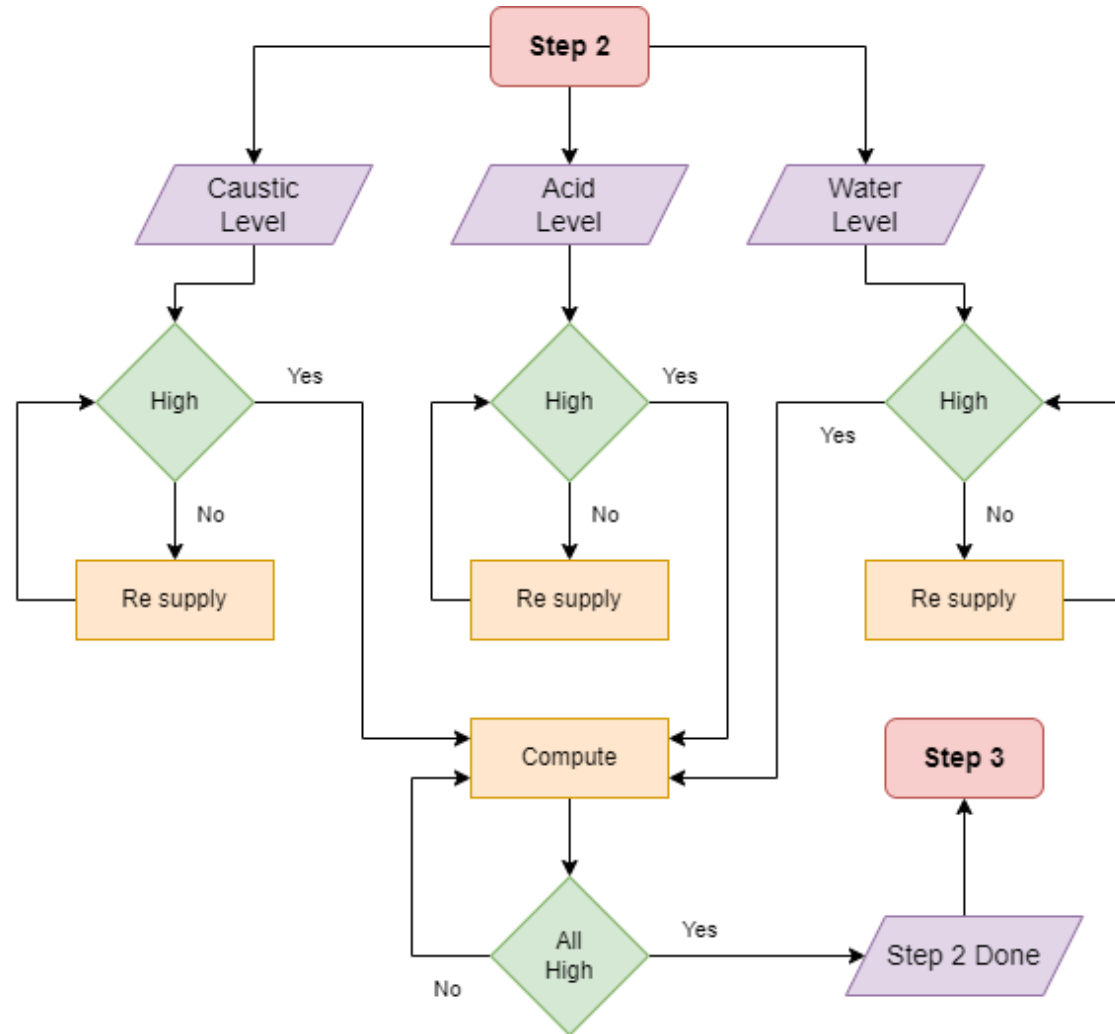
## II. Control System



## II. Control System

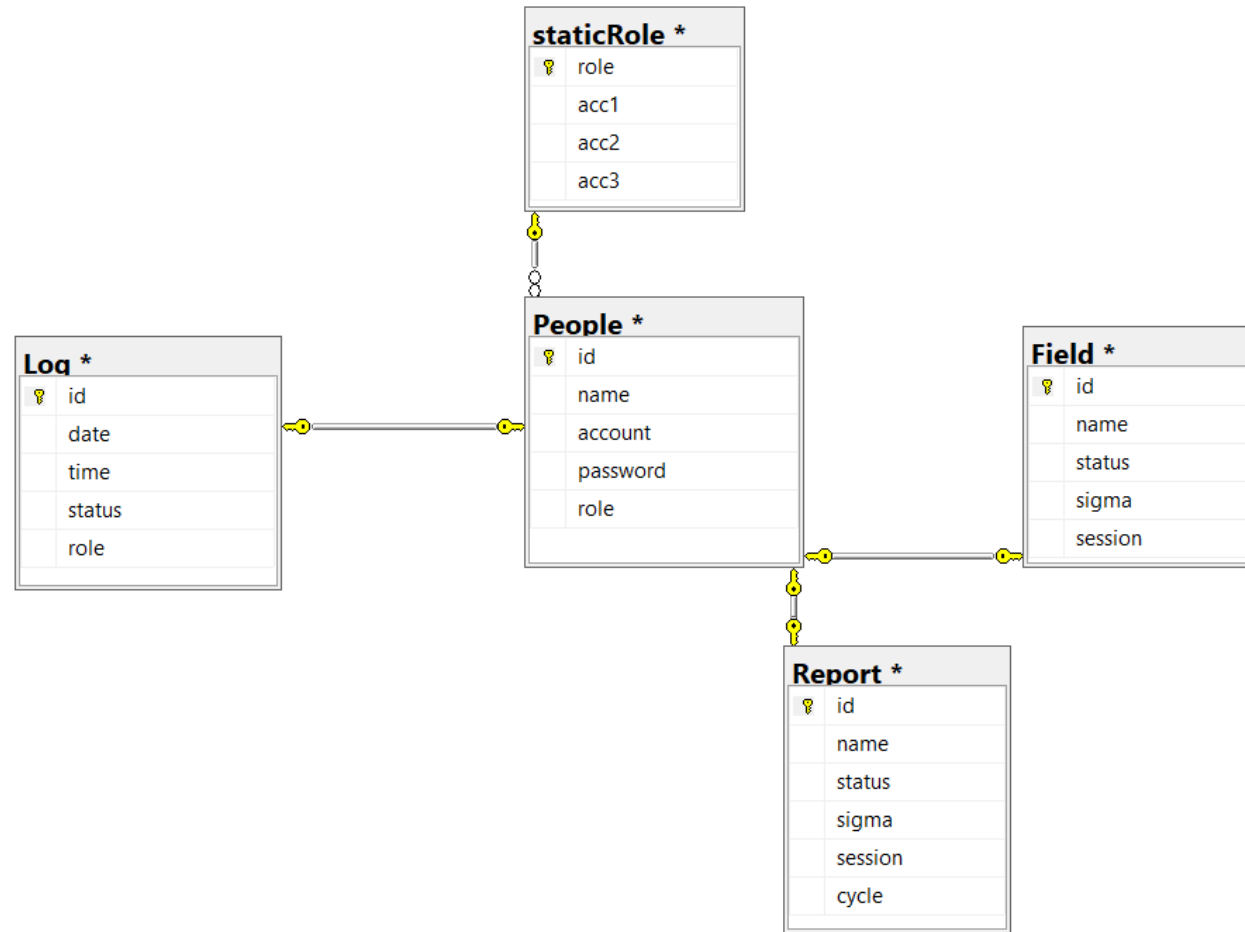


## II. Control System






## II. Control System



## II. Simulation

Login



**Sign In**

admin

admin  
guest  
operator

**LOGIN**

Exit Clear

Admin

ID:

Name:

Account:

Password:

Role:

Change Delete Insert Clear

**View Logs**

**Write Today Report**

Exit Sign Out

	id	name	account	password	role
▶	+20192246	default admin	admin	admin	admin
	+30012001	default operator	operator	operator	operator
	+42582402	default guest	guest	guest	guest
	1	admin	enrasp	30012001	admin
	2	operator	enravie	14121993	operator
	3	guest	nvidia	123456	guest
*					


## II. Simulation

All Logs

1 of 2 ?

100%

Find | Next

 **HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF ELECTRICAL ENGINEERING**


ID	DATE	TIME	STATUS	ROLE
+20192246	Monday, July 3, 2023	4:16:53 PM	online	admin
+42582402	Monday, July 3, 2023	4:53:02 PM	online	guest
+42582402	Monday, July 3, 2023	4:53:07 PM	offline	guest
+20192246	Monday, July 3, 2023	4:53:11 PM	online	admin
+20192246	Monday, July 3, 2023	4:53:13 PM	online	guest
+20192246	Monday, July 3, 2023	4:53:14 PM	offline	guest
+42582402	Monday, July 3, 2023	4:57:26 PM	online	guest
+42582402	Monday, July 3, 2023	4:58:13 PM	offline	guest
+42582402	Monday, July 3, 2023	5:00:08 PM	online	guest
+42582402	Monday, July 3, 2023	5:00:10 PM	offline	guest
+20192246	Monday, July 3, 2023	4:16:56 PM	offline	admin
1	Monday, July 3, 2023	4:19:37 PM	online	admin

Today Log

1 of 1

100%

Find | Next

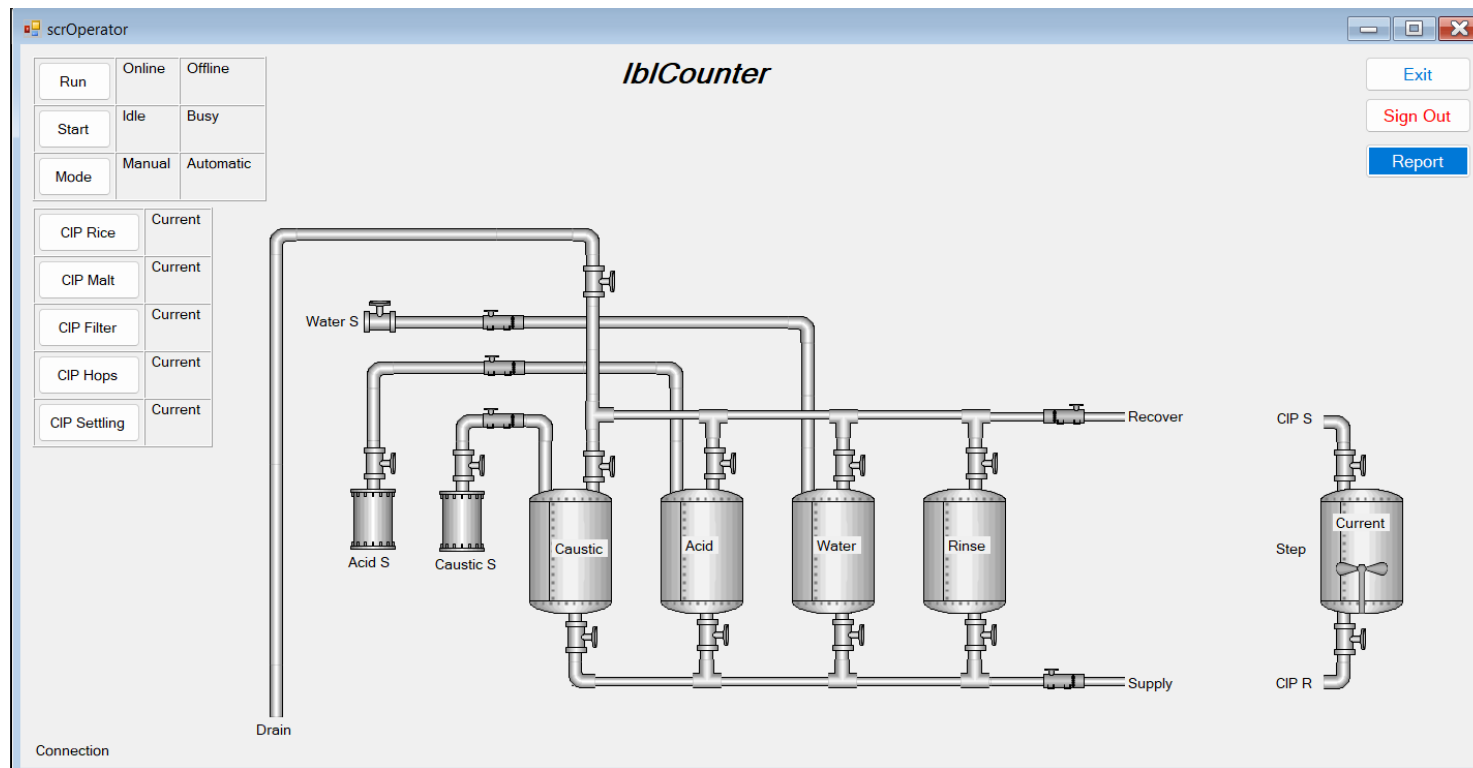
 **HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF ELECTRICAL ENGINEERING**

ID	DATE	TIME	STATUS	ROLE
+30012001	Sunday, August 6, 2023	3:05:50 PM	online	operator
+30012001	Sunday, August 6, 2023	3:08:43 PM	online	operator
+20192246	Sunday, August 6, 2023	6:54:13 PM	online	admin

Hà Nội, ..... / ..... / .....

Ký tên

# II. Simulation



Report

1 of 1

Find Next

100%

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SCHOOL OF ELECTRICAL ENGINEERING

ID	NAME	STATUS	SIGMA	SESSION	CYCLE
0	Rice	low	6.00	0.00	NA
1	Malt	low	3.00	0.00	NA
2	Filter	low	3.00	0.00	NA
3	Hops	low	5.00	2.00	NA
4	Settling	low	4.00	1.00	NA
5	Caustic	high	3.00	0.00	11.00
6	Acid	high	3.00	0.00	11.00
7	Water	high	60.00	6.00	NA
8	Rinse	high	27.00	3.00	NA

Hà Nội, .... / .... / ....

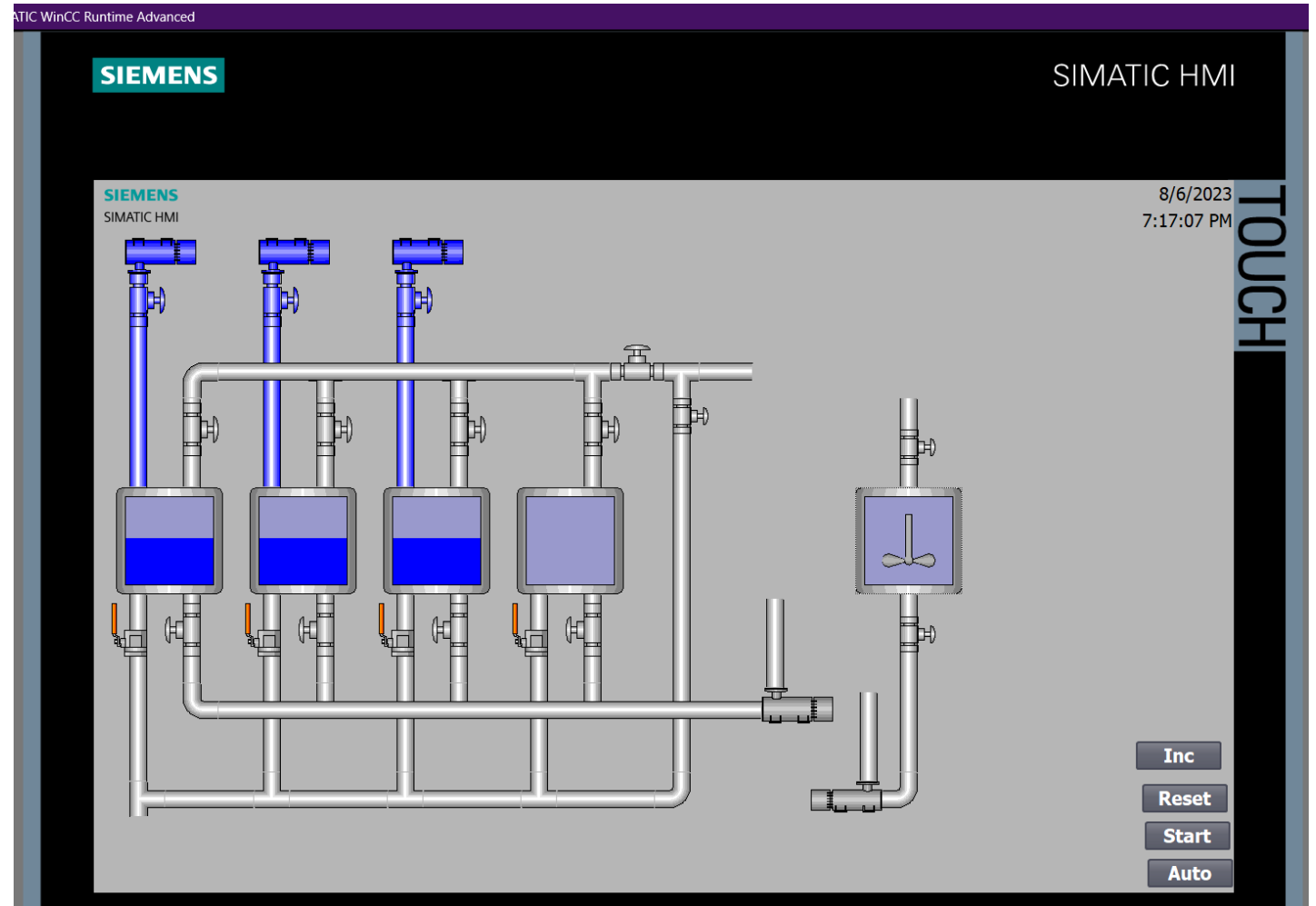
Ký tên

Exit

Sign Out

# II. Simulation

+20192246	Monday, July 3, 2023	4:16:56 PM	offline	admin
1	Monday, July 3, 2023	4:19:37 PM	online	admin
1	Monday, July 3, 2023	4:19:53 PM	offline	admin
+30012001	Monday, July 3, 2023	4:25:14 PM	online	operator
+30012001	Monday, July 3, 2023	4:26:45 PM	offline	operator
2	Monday, July 3, 2023	4:27:00 PM	online	operator
2	Monday, July 3, 2023	4:27:03 PM	offline	operator
+42582402	Monday, July 3, 2023	4:46:39 PM	online	guest
+42582402	Monday, July 3, 2023	4:46:47 PM	offline	guest







# HUST

# THANK YOU !

