ECE298 : Lab B4
Prototype Model Design

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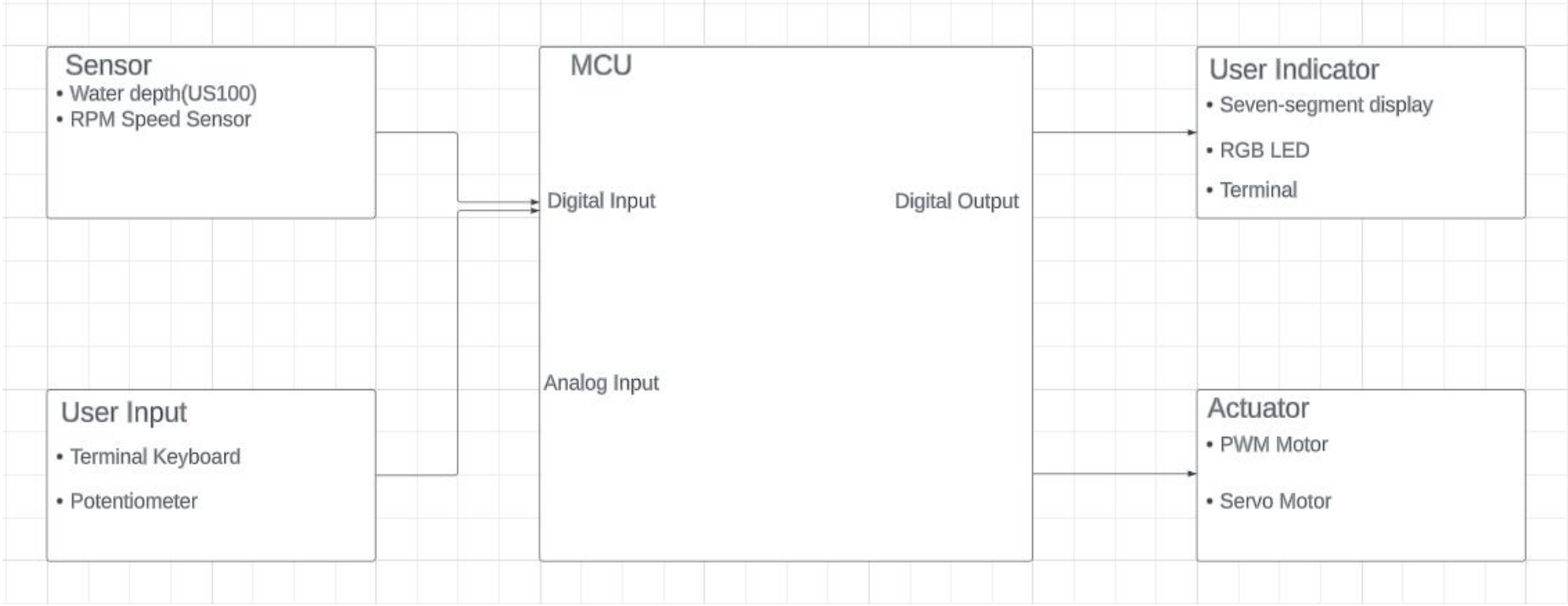
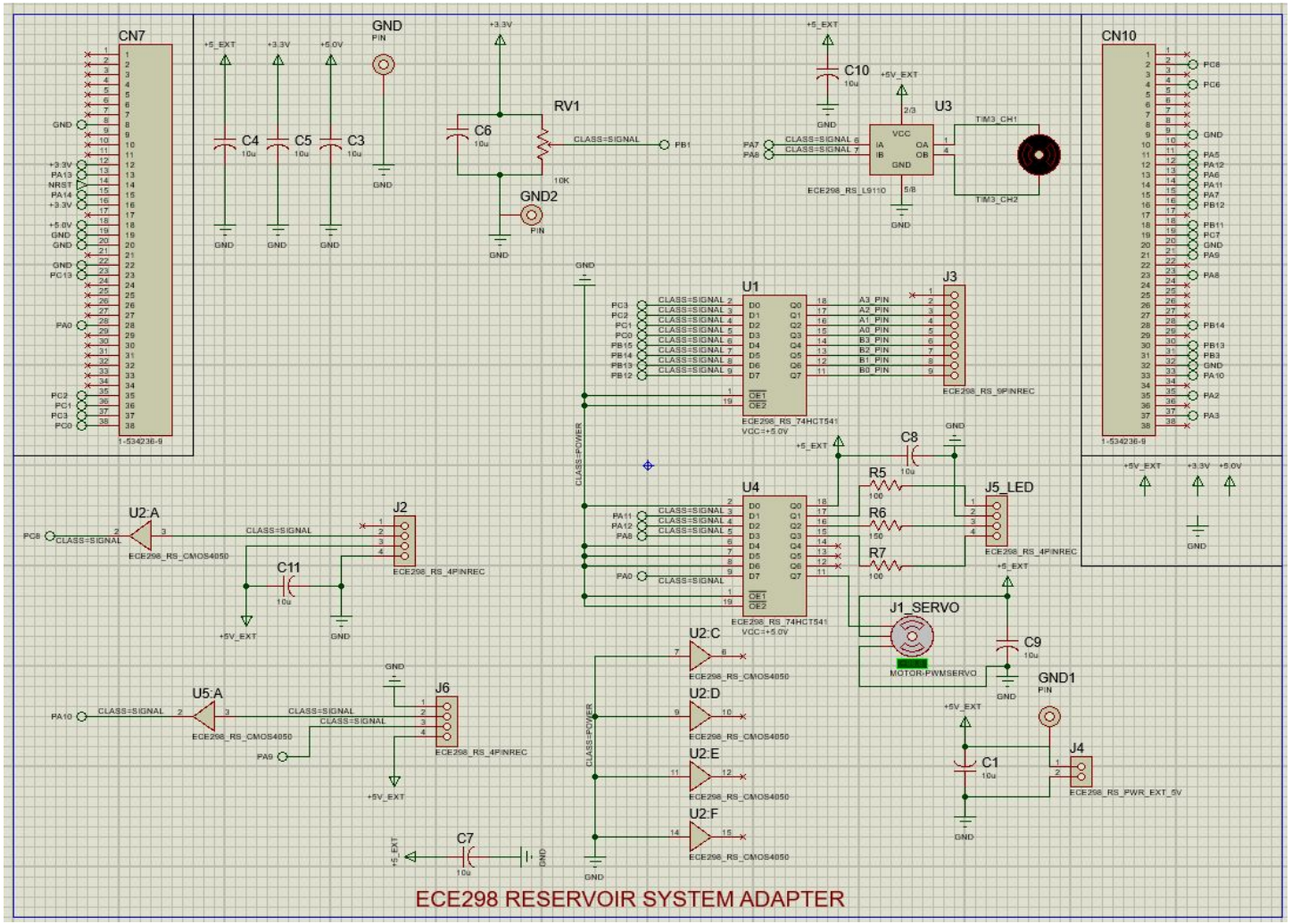
Section 1, Group 5

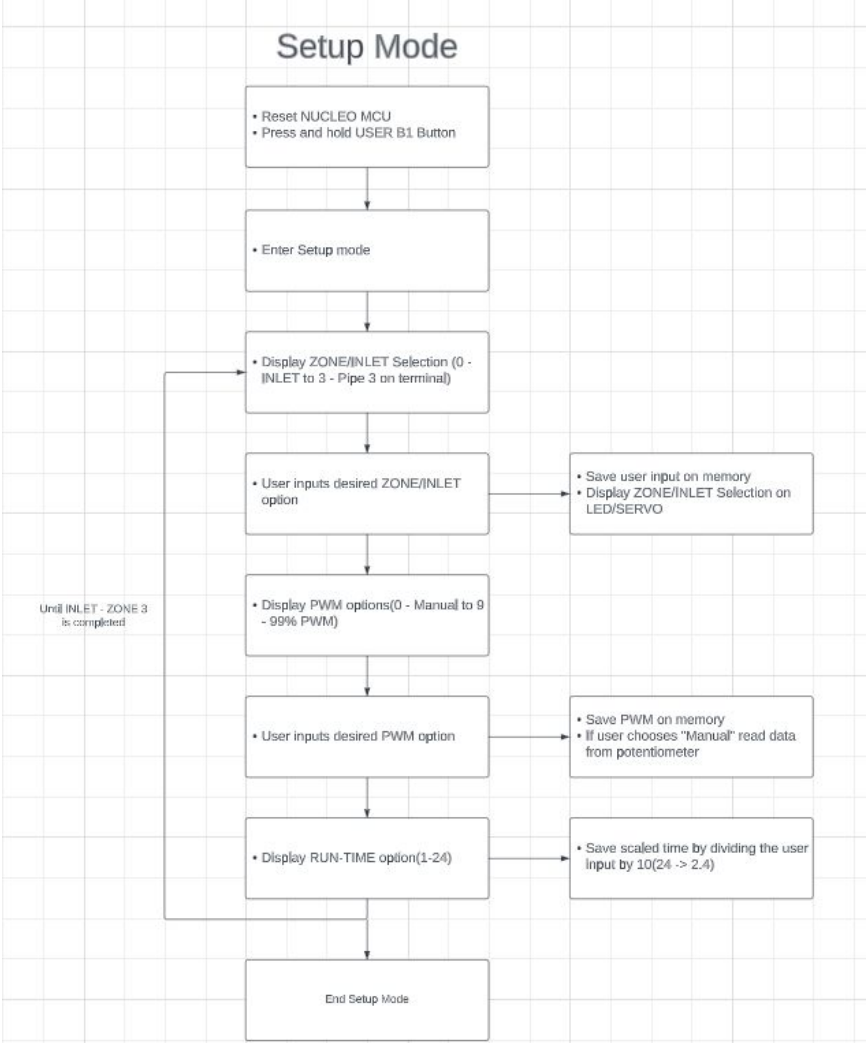
System-Level Design



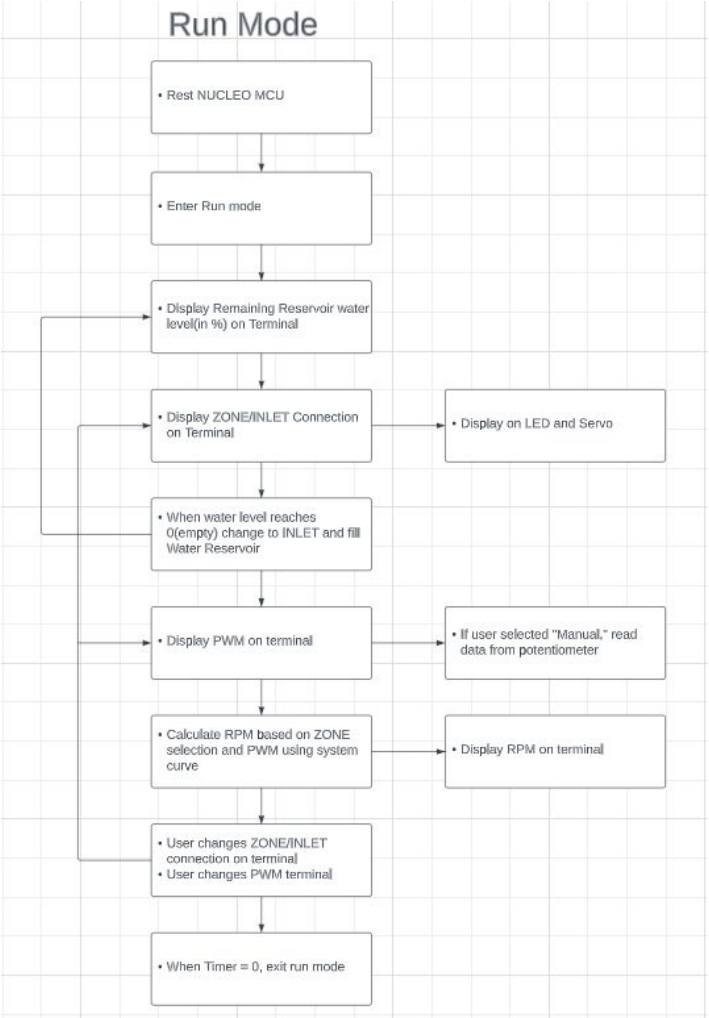
Schematics


CN7
CN10
GND
GND1
GND2
RV1
10K
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
R5
R6
R7
U1
U2:A
U2:C
U2:D
U2:E
U2:F
U3
U4
U5:A
J1_SERVO
J2
J3
J4
J5_LED
J6
+5_EXT
+5V_EXT
+3.3V
+5.0V
CLASS=SIGNAL
CLASS=POWER
ECE298_RS_74HCT541
ECE298_RS_CMOS4050
ECE298_RS_4PINREC
ECE298_RS_9PINREC
ECE298_RS_PWR_EXT_5V
ECE298_RS_L9110
MOTOR-PWMSERVO
ECE298 RESERVOIR SYSTEM ADAPTER

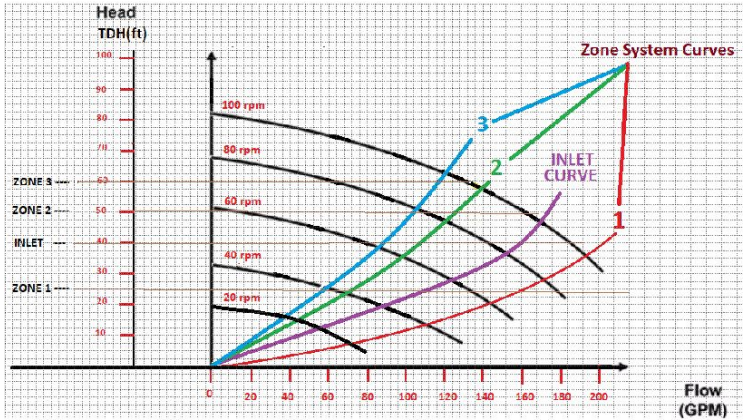
Setup Mode Flow Chart



Run Mode Flow Chart



Minimal Energy Operation Plan



ZONE/ GPM	20	40	60	80	100
Zone 1	70	110	144	172	193
INLET	65	88	124	152	170
Zone 2	44	71	98	121	140
Zone 3	38	58	85	105	121

GPM according to the customer site system curves

Minimal Energy Operation Plan cont.

Order of Operation :
INLET -> HOLD ->
Zone 1 -> Zone 2 ->
Zone 3

Planned Time of Operation :
INLET : 11:00 pm - 9:00 am
HOLD : 9:00 am - 11:30 am
ZONE 1 : 11:30 am - 5:00 pm
ZONE 2 : 5:00 pm - 9:00 pm
ZONE 3 : 9:00 pm - 11:00 pm

Ultra-Low Overnight (ULO)

ULO Price Periods	All Year	ULO Prices (¢/kWh)
Ultra-Low Overnight	Every day 11pm – 7am	2.4
Weekend Off-Peak	Weekends and holidays 7am – 11pm	7.4
Mid-Peak	Weekdays 7am – 4pm and 9pm to 11pm	10.2
On-Peak	Weekdays 4pm – 9pm	24

Using Ultra-Low Overnight & Weekend Off-Peak pricing
INLET : (260kW x 8hr x 2.4¢/kWh) + (260kW x 2hr x 7.4¢/kWh) = 8840¢
ZONE 1 : 125kW x 5.5hr x 7.4¢/kWh = 5087.5¢
ZONE 2 : 210kW x 4hr x 7.4¢/kWh = 6216¢
ZONE 3 : 120kW x 2hr x 7.4¢/kWh = 1776¢

Total Pricing = 8840¢ + 5087.5¢ + 6216¢ + 1776¢ = 21919.5¢ = $219.20/day

THANK YOU!