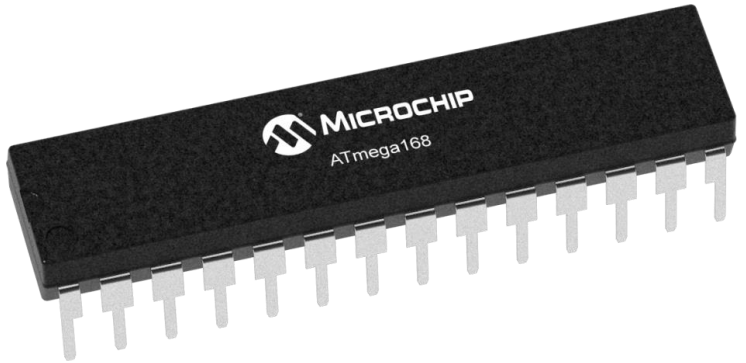
Mini oscilloscope

PWM Signal Drawer

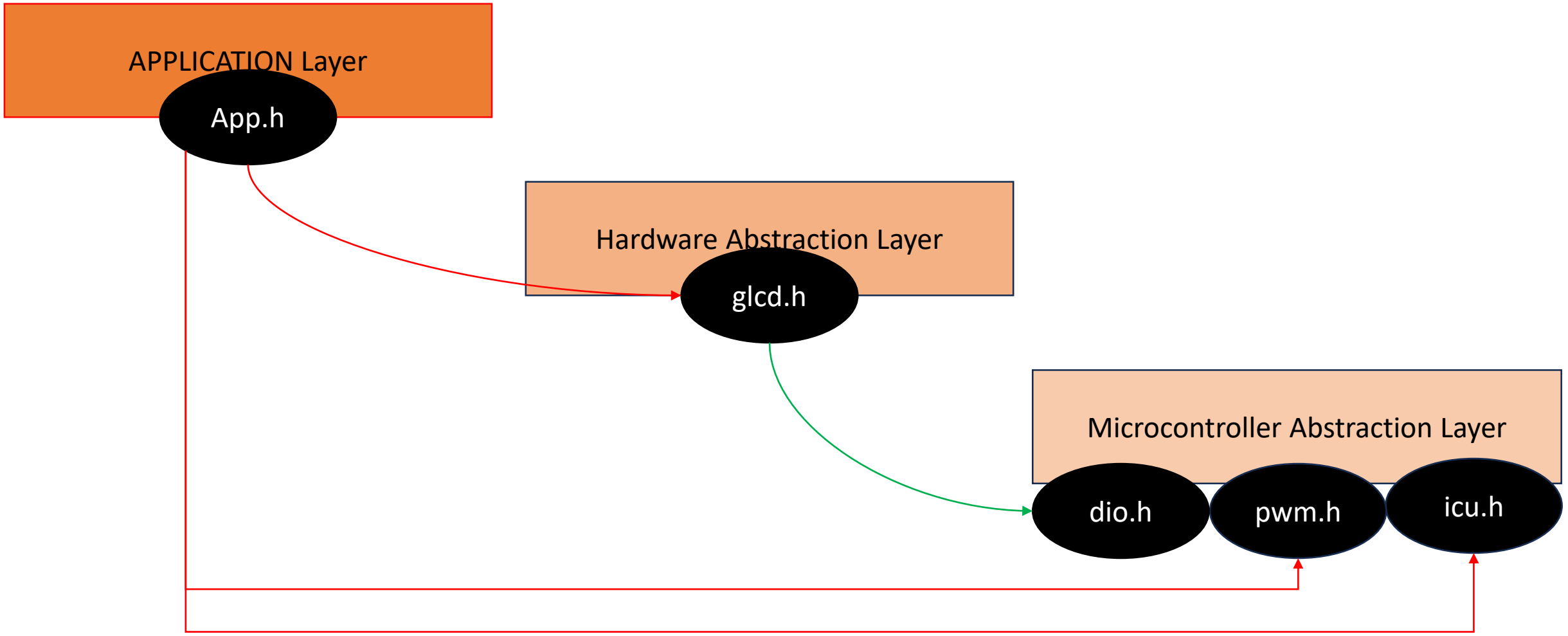
using :

- **ATMega32A Microcontroller**
- **GLCD (ks0108)**

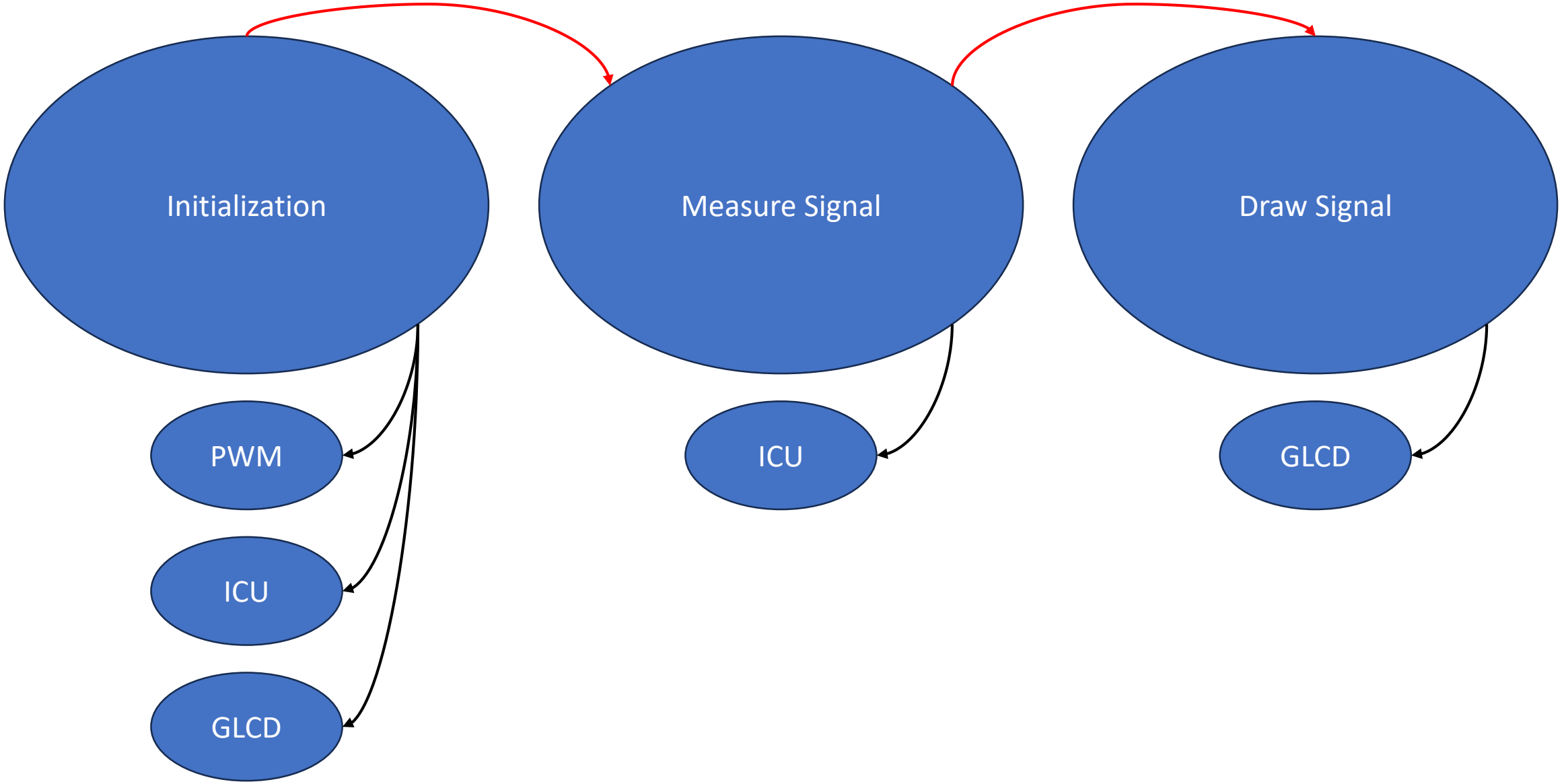
AMIT Graduation Project
Presented by: Eng. Ali Muhammad
Emb.61
alimuhammadabuamer@gmail.com



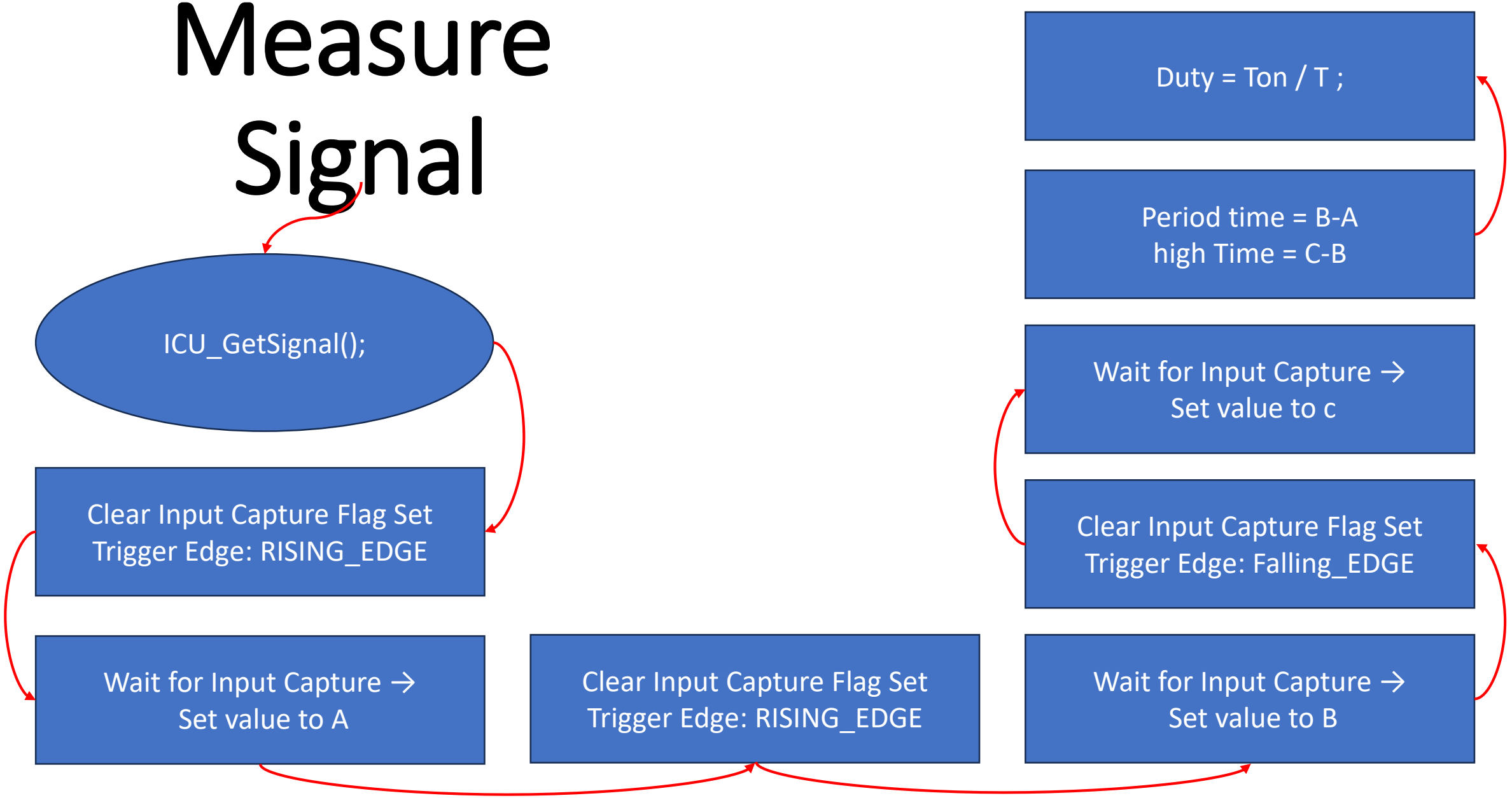
Layered Architecture



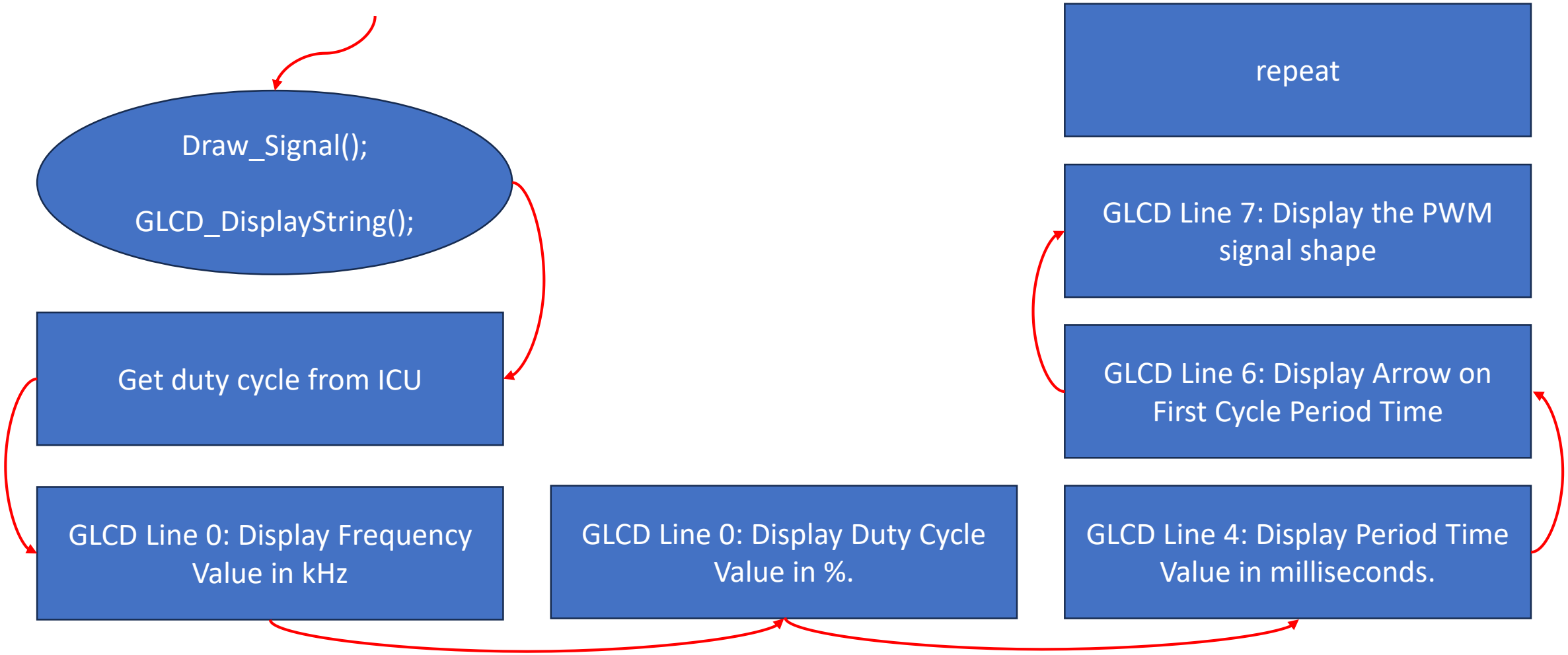
FlowChart

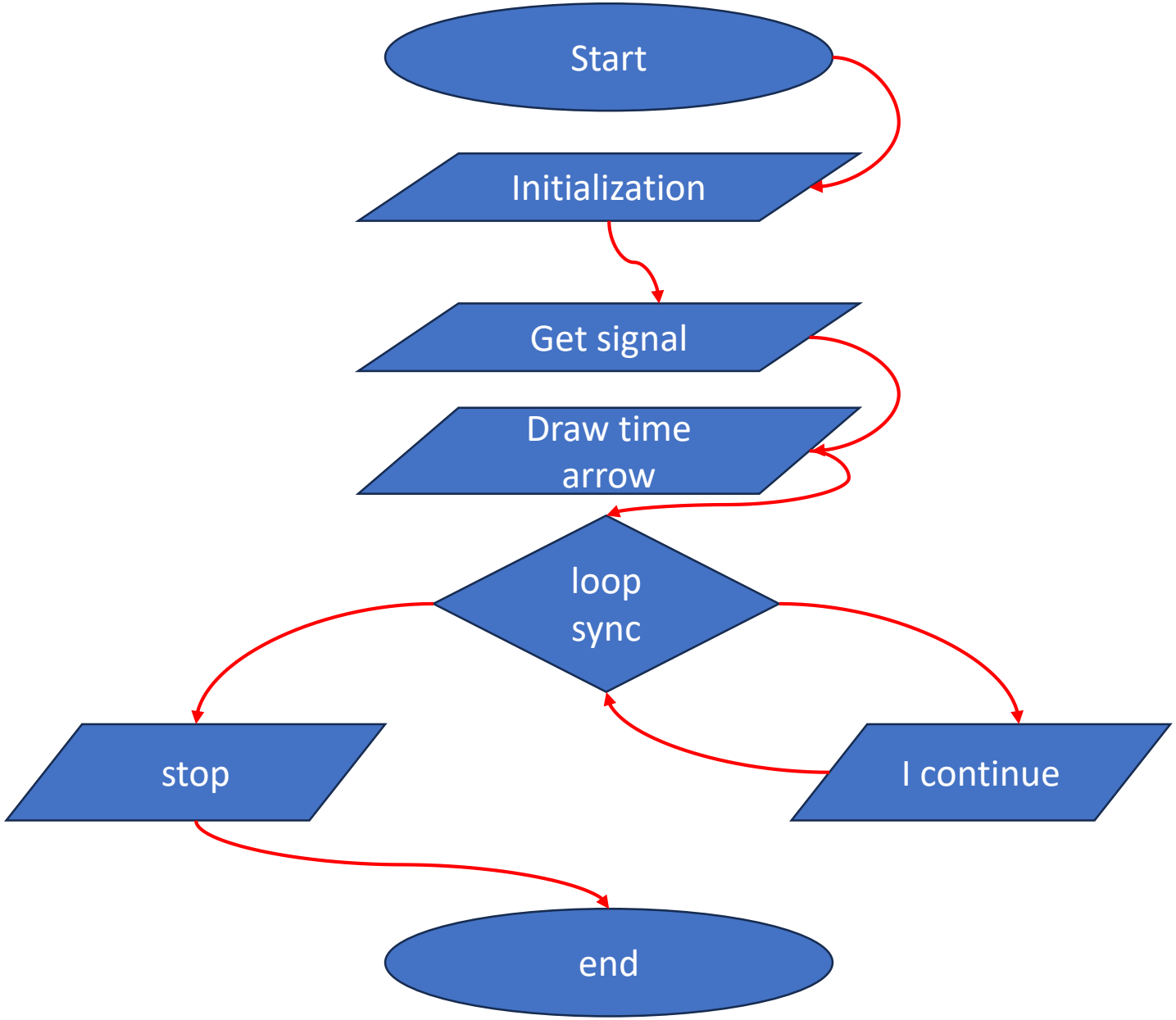

Initialization
Measure Signal
Draw Signal
PWM
ICU
GLCD
ICU
GLCD

Measure Signal

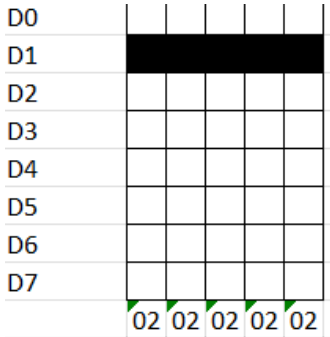


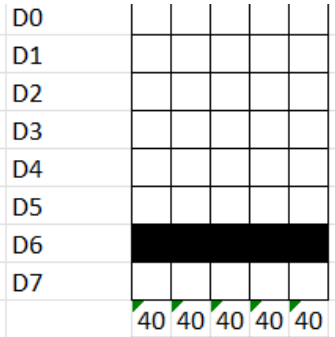
Draw Signal

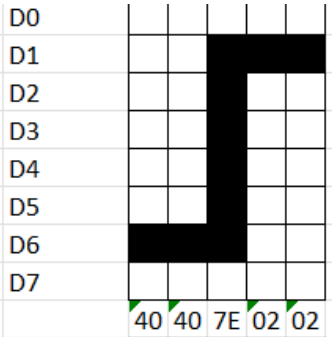

Draw_Signal();
GLCD_DisplayString();
Get duty cycle from ICU
GLCD Line 0: Display Frequency Value in kHz
GLCD Line 0: Display Duty Cycle Value in %.
GLCD Line 4: Display Period Time Value in milliseconds.
GLCD Line 6: Display Arrow on First Cycle Period Time
GLCD Line 7: Display the PWM signal shape
repeat

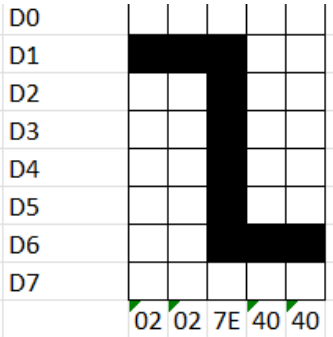

Start
Initialization
Get signal
Draw time
arrow
loop
sync
stop
I continue
end

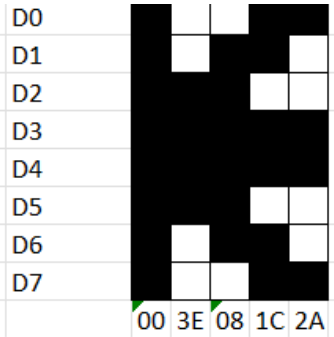
Special Patterns on Graphical LCD

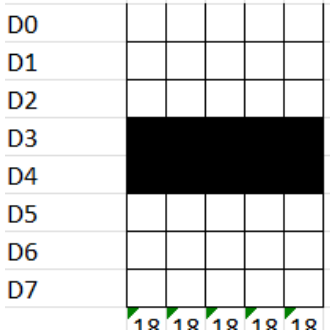


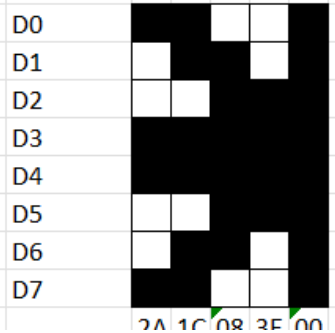


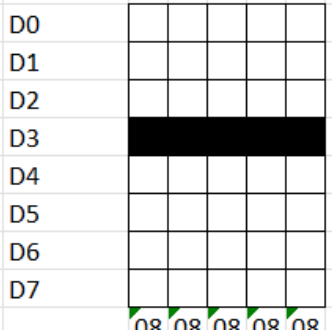












Thank you !