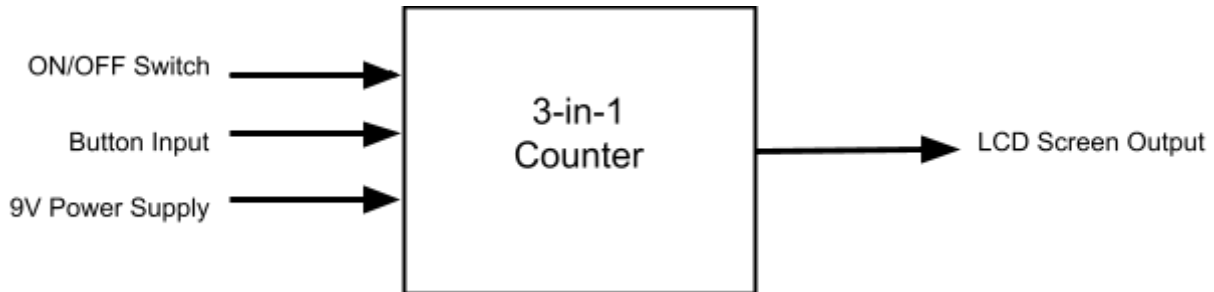


Week 7: Functional Decomposition

Team 3: Celina Wong, Alex Kim, Huibo Yu, Dmytro Prystupa

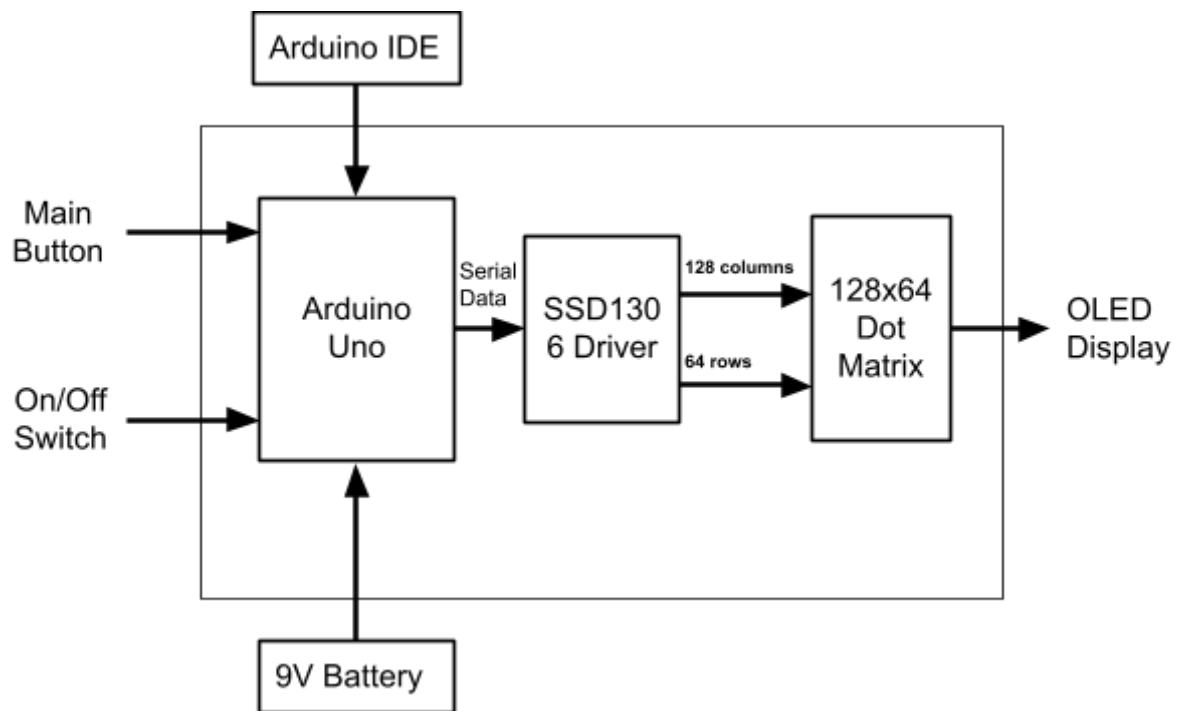
L0 Decomposition



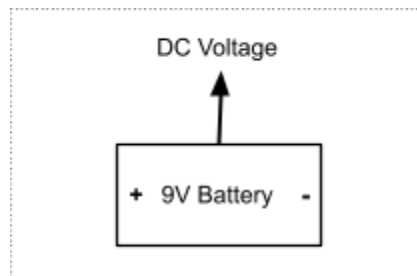
<i>Module</i>	3-in-1 Counter
<i>Inputs</i>	On/Off Switch Button: when pressed power on/off device Button: when pressed, the button will Run/Stop toggle signal 9V Power Supply
<i>Outputs</i>	LCD Screen
<i>Functionality</i>	Device is capable of acting as a counter, stopwatch, and a flappy bird game mode. It will be able to count the number of times the button is pushed and can be cleared to zero. The stopwatch counts the number of seconds after the button is pressed and will stop counting when pushed again (will be able to clear to zero also). Finally, our device will also have a flappy bird game mode for user entertainment.

(continued)

L1 Decomposition

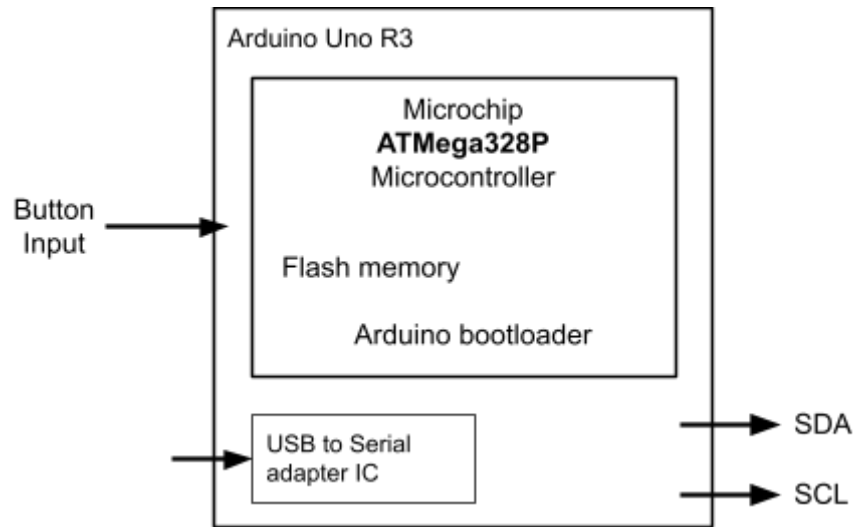


9V Battery: Level 1



Module	9V Battery
Inputs	N/A
Outputs	+/- 9V DC
Functionality	Delivers DC voltage to the Arduino Nano.

Arduino Nano: Level 1



<i>Module</i>	Arduino Nano
<i>Inputs</i>	Main button, on/off switch
<i>Outputs</i>	Serial Data (SDA/SCL)
<i>Functionality</i>	PCBA (printed circuit board assembly) with ATMega328P microcontroller. It has a USB to serial-adapter along with a pre-loaded Arduino program.

SSD1306 Driver: Level 1

<i>Module</i>	SSD1306 Driver
<i>Inputs</i>	Serial Data (SDA/SCL)
<i>Outputs</i>	128x64 Dot Matrix
<i>Functionality</i>	Display controller interfaces with microcontroller to get a visual output.