AUTOMETIC POWER FACTOR CORRECTION

Kazi Sadia
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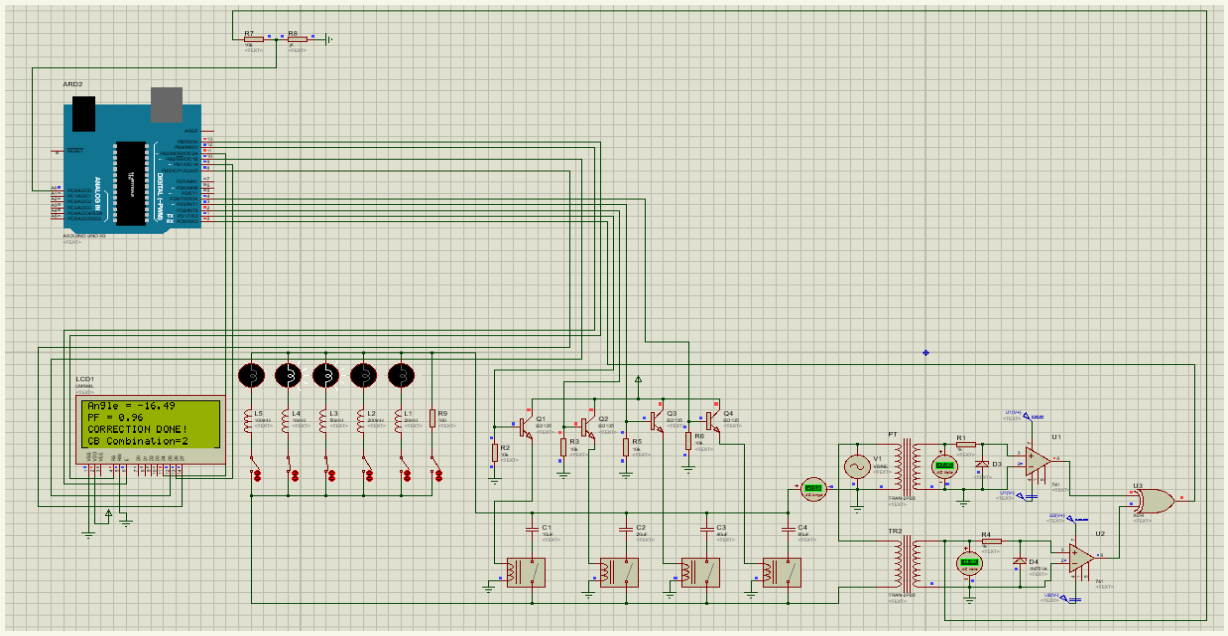
❑ **Target Functionality :**

To increase the efficiency of the system/device which matches the functional performance of this system ;

❑ **Significant Problem :**

Poor voltage regulation - In home or industry purpose;

❑ **Design Consideration:**



- Cost
- Quality
- Easy of use

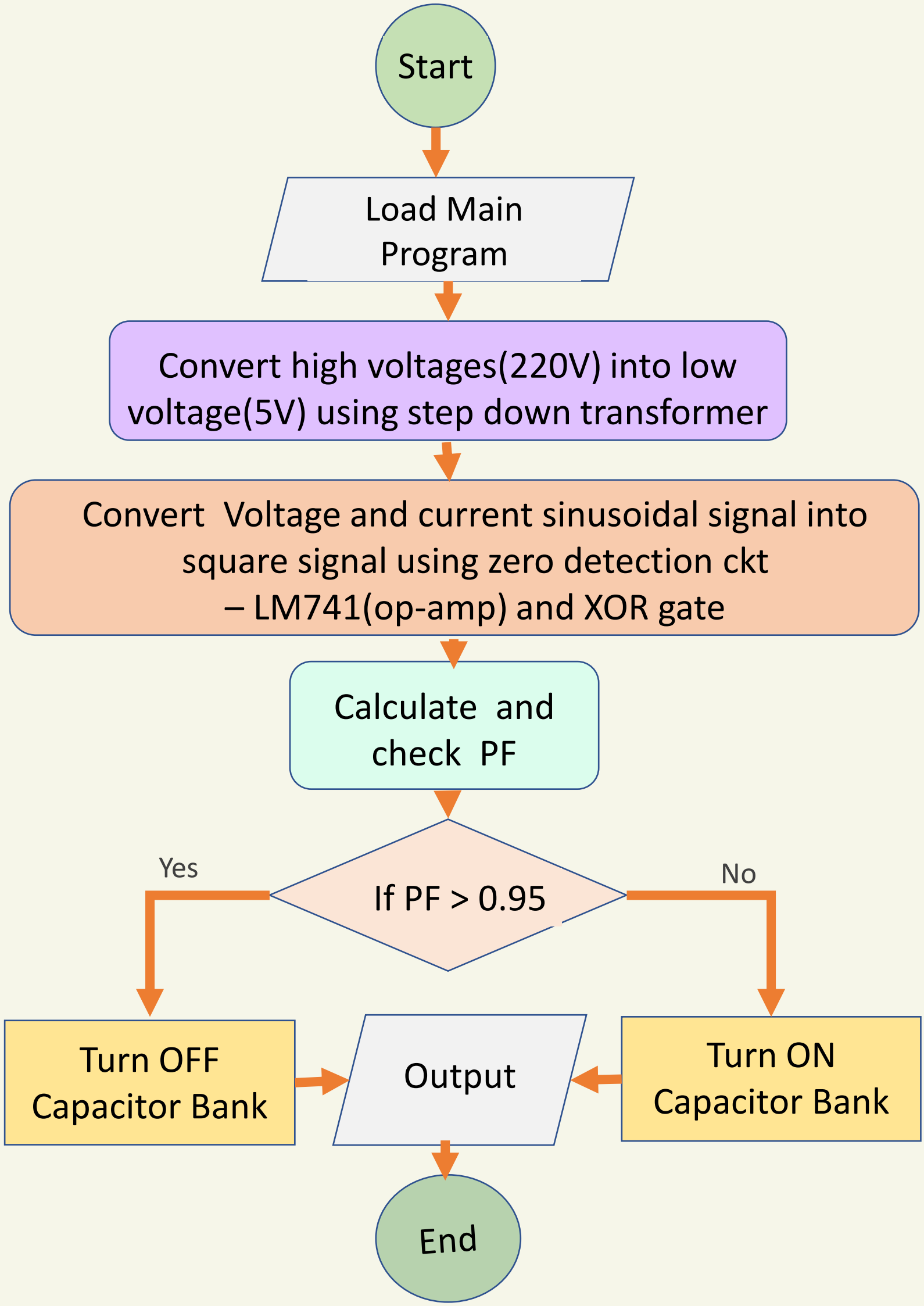
❑ **Scope for Future Upgrade in functionalities or other factors :**

In future it will configured by PIC microcontroller with many more functionalities;

❑ **Error Tolerance:**

As it is implemented as prototype for now. So it is quite tough to say error in real time build;

FLOW CHART


Start
Load Main Program
Convert high voltages(220V) into low voltage(5V) using step down transformer
Convert Voltage and current sinusoidal signal into square signal using zero detection ckt – LM741(op-amp) and XOR gate
Calculate and check PF
If PF > 0.95
Yes
No
Turn OFF Capacitor Bank
Output
Turn ON Capacitor Bank
End

REFERENCES:

1. https://www.youtube.com/watch?v=l8g-TYkc5Wo

2. https://www.researchgate.net/publication/344718836_Automatic_Power_Factor_Improvement_using_Arduino