IUPS Mode-V: Battery supply mode and UPS power supply mode if Converter station H-3 fails mode:
Under this mode it will be perform 3 additional functional according to the necessary conditions firstly it will feed the load via H-4, H-1 & H-2 converter station, secondly UPS power supply mode it will feed the load via H-1 & H-2 and as well as charge the battery via H-3 and thirdly it will also works in static by pass mode via H-4 station totally it will check the condition's according it will turns on the particular mode of operation and will be continuously feed load if necessary or it will feed the grid when it requires. So this we can make smarter intelligent UPS system.

7. Simulink Model of IUPS for Smart Grid

The Intelligent UPS is designed by using Matlab Simulink toll and constructed according to the proposed work the below fig.3 shows the basic model of IUPS which consists of two parts firstly is

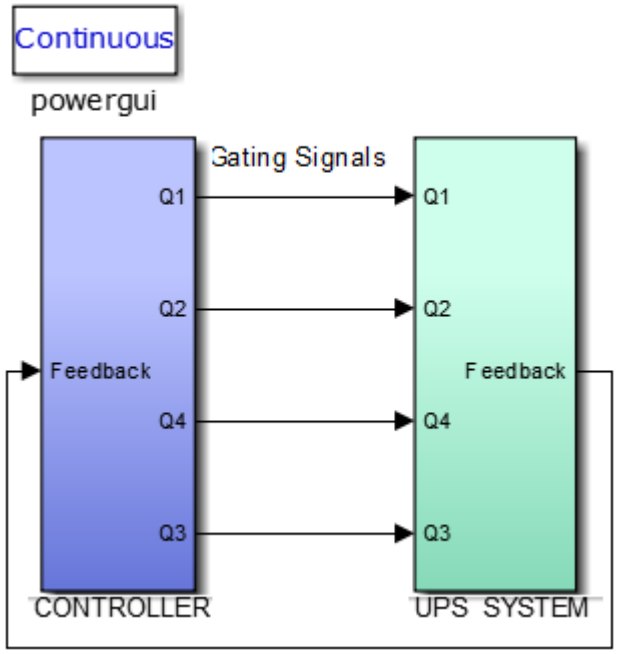

Figure 3: Intelligent UPS for Smart Grid

Controller part and the second one is UPS system. The IUPS will operating in the different modes that can be controlled by using SPWM technique to generate the pulses for converter station according to in which made necessary by giving a feedback signals to the controller and which will be generates the pulses by comparing with the reference signals and gives the pulses to bridge which is shown in the fig.4.a & b below

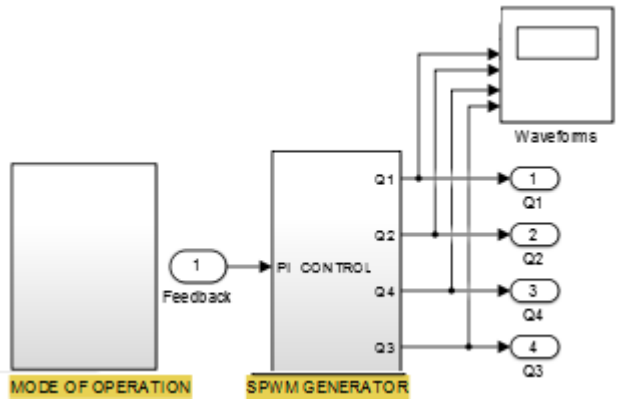

Figure 4: a. SPWM feeding to converter station

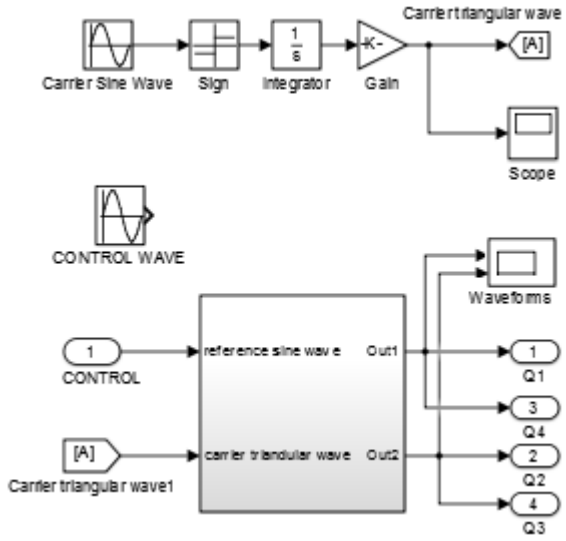

Figure 4 (b): Generation of pulses with comparing of reference sine wave and triangular wave

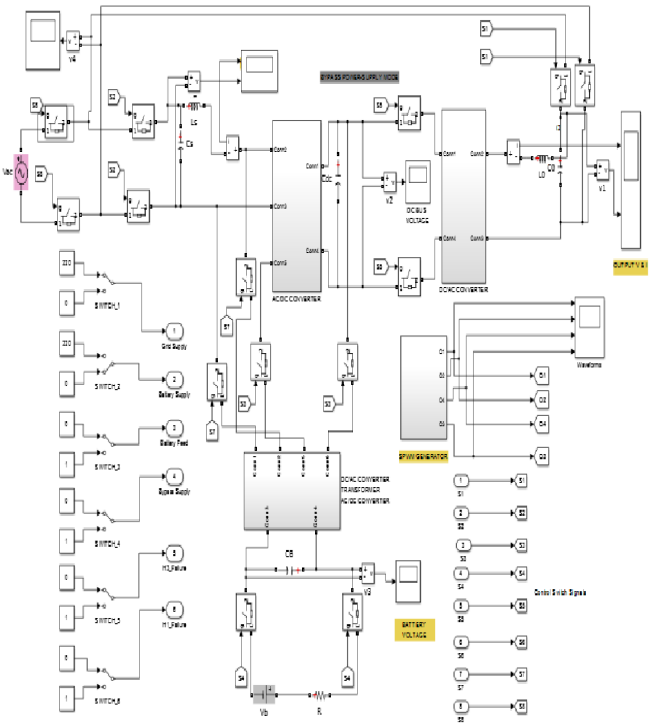

Figure 5: Simulink Model of Intelligent UPS for Smart Grid

The above fig.5. Shows the final modeling of Intelligent UPS system for smart grid. By constructing this we can easily make the system smarter and smarter, also we can easily achieve the online UPS for both the load and as well grid connecting if grid requires additional sources in order to meet the demand of the other load which connected to grid.

8. Simulation Results of IUPS System.

The modeling of the IUPS has been done and the different modes of operation simulation results are expressed below.

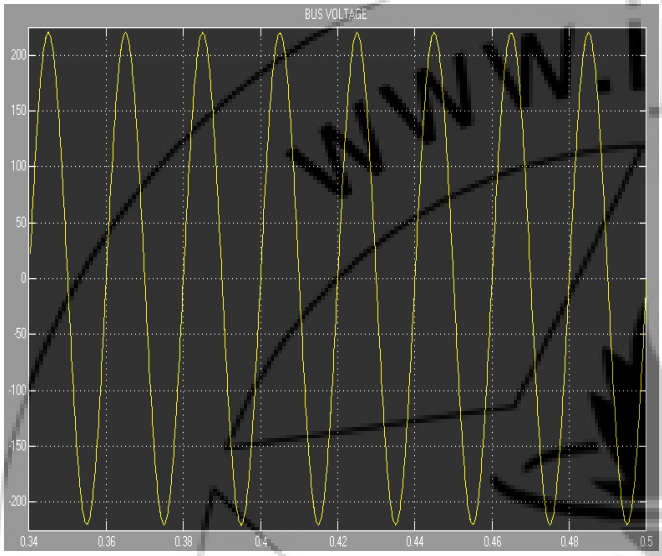

Figure 6: Input source voltgae from grid

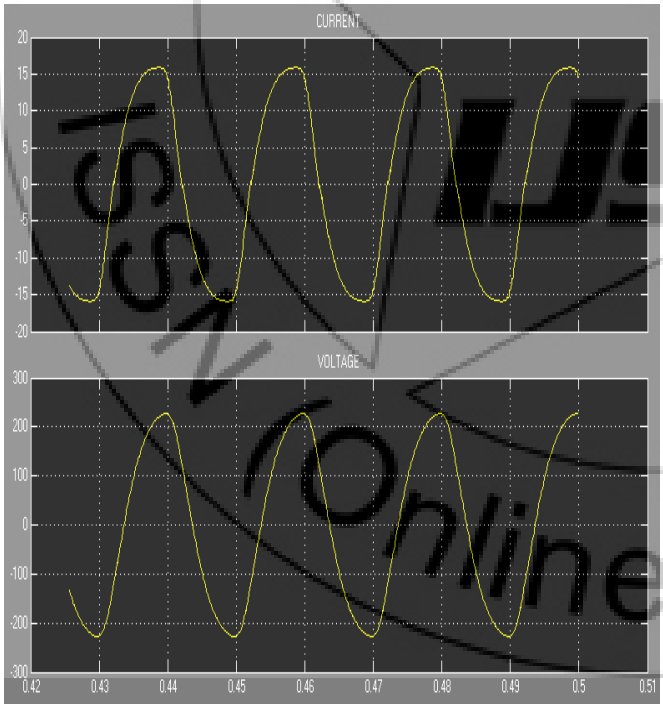

Figure 7: Static by pass power supply mode

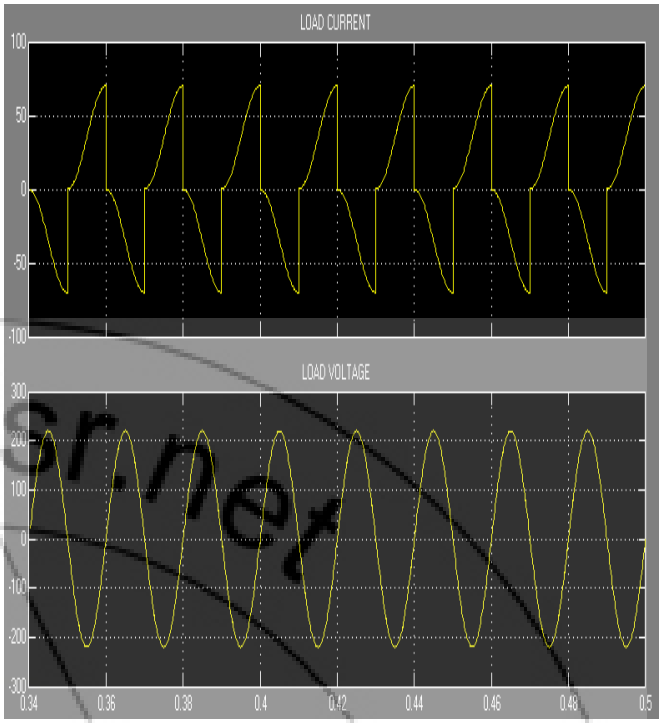

Figure 8: Load current and voltage During UPS mode

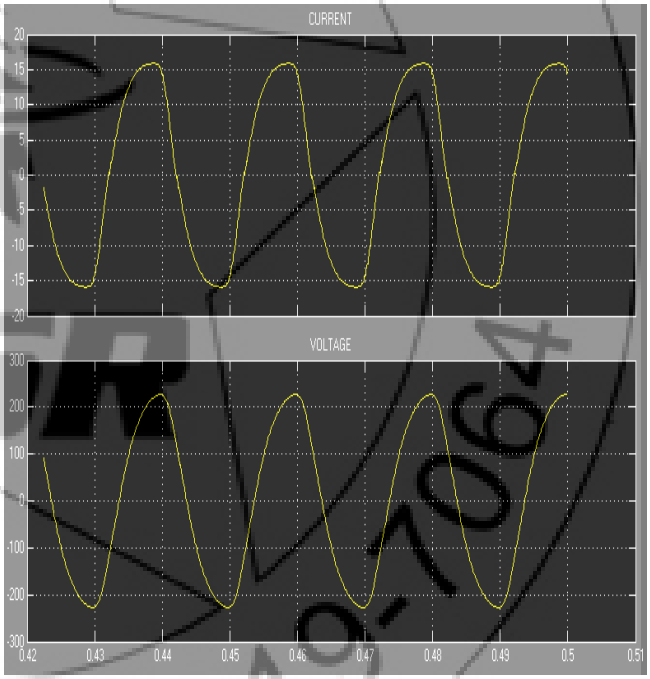

Figure 9: Load current and voltage during battery power supply mode

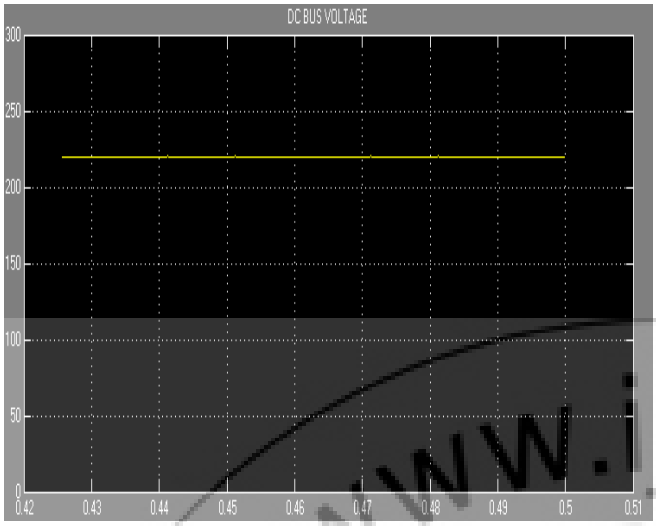

Figure 10: DC Link BUS Voltage

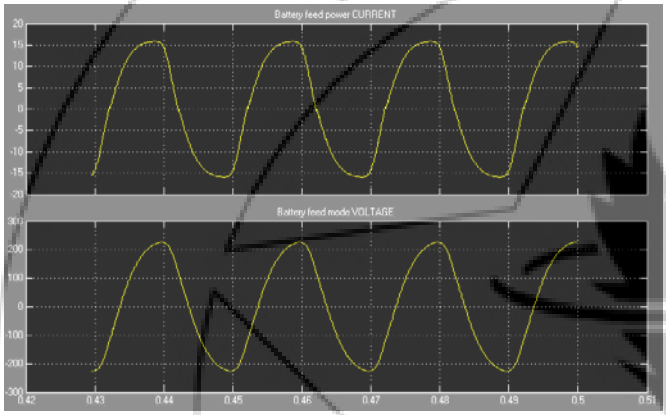

Figure 11:.Battery feed power supply mode

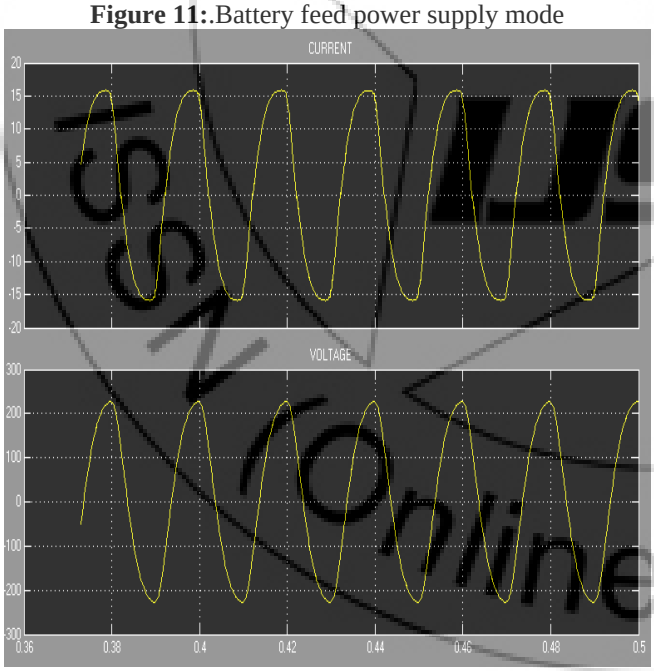

Figure 12: Battery power feed & Battery supply mode mode if H-3 failure

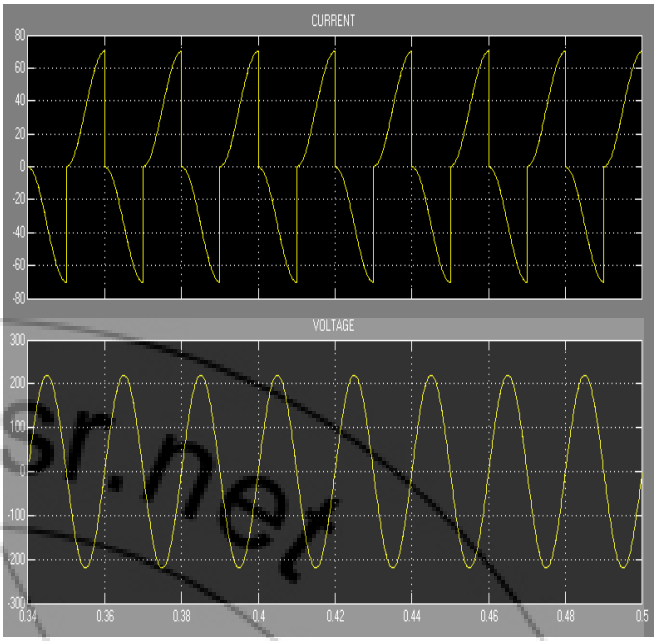

Figure 13: UPS & battery feed power supply mode if H-1 failure

9. Conclusion

In order to meet the present modern trend electricity demand and as well as to give additional support to the smart grid, the proposed intelligent uninterruptable power supply will plays a very important role, in view of this we are proposed the IUPS and analysed, the whole system by designed the system with the help of Matlab Simulink toll and we are verified for the different modes of operation. The unidirectional electricity providing UPS system can't satisfy the need of the demand of it anymore, "Green," energy saving, modular, and IUPS system become the main development trend. The proposed IUPS system not only can analyse all the basic functions of the conventional UPS system, but also can fill the gap between the electrical power and the power grid and storage battery and make it become a "Green" user to the power grid. By this we can easily achieve the continuous power supply without interrupting and also it can be easily switched into different mode depending of the need of application also can apply for type drive system and other so many applications and ultimately it leads to the growth of the country economy and the whole system will looks holistic manner.

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