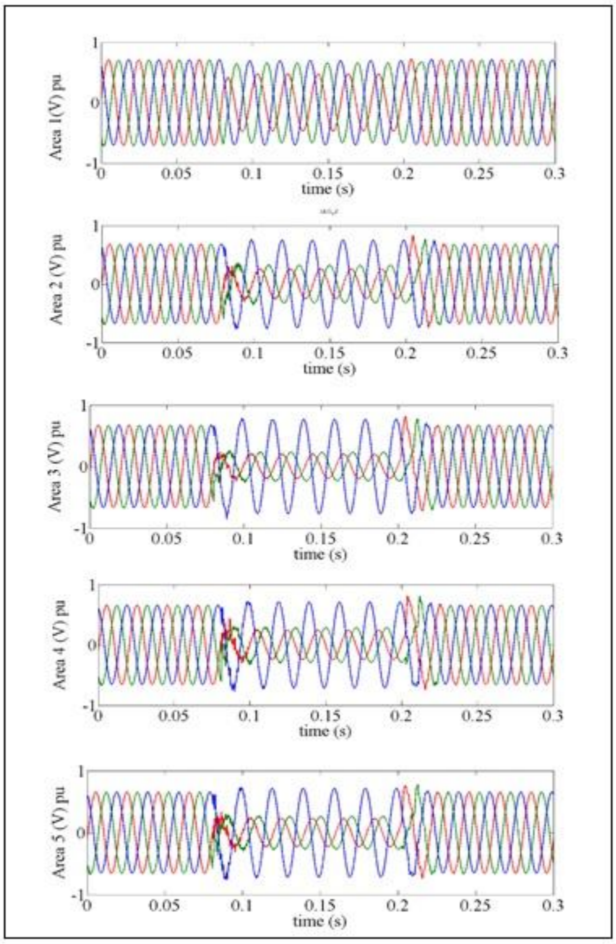

Figure 4: Three phase voltage signals at each bus.

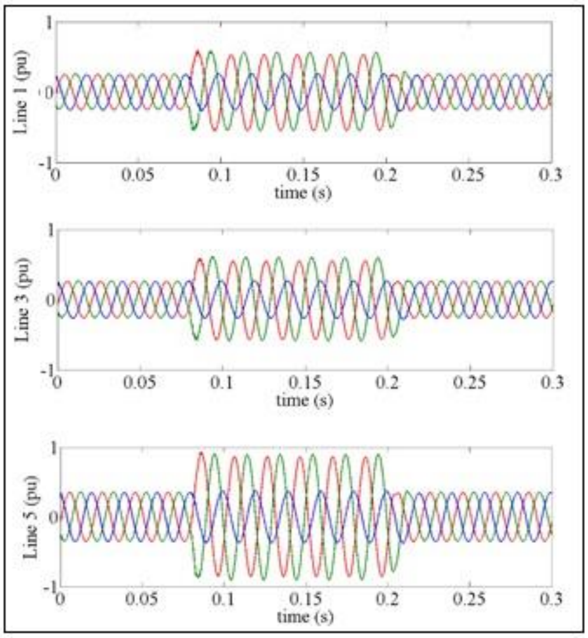

Figure 5: Three phase current signals for all lines connected to the faulted area

5. Conclusion

The paper addresses the main reason for the execution of WAPCAM system. PMU is used as the main protection for wide area. Proposed technique is very much helpful than the existing techniques which reduces the chances of blackouts. The survey of simulation results for various fault conditions. The proposed algorithm structure is suitable and effective for different network conditions as a backup protection (third zone) and also identified the faulted line all over the interconnect system. Unlike the present techniques, it provides reliable protection to the power system so that it can be applied to any practical power system. Test results from MATLAB simulation seems to be satisfactory. It is very much helpful to overcome the problem of Blackouts.

References

[1] Terzija Vladimir, Valverde Gustavo, CaiDeyu, RegulskiPawel, MadaniVahid , Fitch John, SkokSrdjan, MiroslavM.Begovic&Phadeke A "Wide-Are Monitoring,Protection, and Control of Future Electric Power Networks", Presented At Proceedings of the IEEE, VOL. 99, NO. 1, Jan 2011, PP.80-93.

[2] S. H. Horowitz and A. G. Phake, Power System Relaying. Taunton, Somerset, U.K.: Research Studies Press, 1992.

[3] A. Y. Abdelaziz, S. F. Mekhamer, M. Ezzat and E. F. El-Saadany, "Line Outage Detection Using Support Vector Machine (SVM) Based on the Phasor Measurement Units (PMUs) Technology," 2012 IEEE

[4] M. M. Eissa, Senior, M. ElshahatMasoud, and M. Magdy Mohamed Elanwar, "A Novel Back up Wide Area Protection Technique for Power Transmission Grids Using Phasor Measurement Unit," IEEE TRANSACTIONS ON POWER DELIVERY, VOL. 25, NO. 1, JANUARY 2010.

[5] C.-S. Yu, C.-W. Liu, S.-L. Yu, and J.-A. Jiang, "A new PMU-based fault location algorithm for series compensated lines," IEEE Trans. Power Del., vol. 17, no. 1, pp. 33–46, Jan. 2002.

[6] P. Eguia, I. Martin, I. Zamora, R. Cimadevilla," Fault location in combined transmission lines using PMUs for recloser control," 2011 IEEE Trondheim Power- Tech.

[7] A. G. Phadke, J. S. Thorp, M. G. Adamiak, "A NEW Measurement Technique Voltage Phasors, Frequency and Rate of Change of Frequency", IEEE Transactions on Power Apparatus and Systems, Vol. PAS-102, No. 5-May 1983, pp.1025-1038.

[8] Waikar D.L. et al, "Real Time Assessment of a Symmetrical Component and Microcontroller based Distance Relay", Electric Power System Research, Vol. 32, No.2, pp107 112.

[9] Reynaldo F. Nuqui and Arun G. Phadke, "Phasor Measurement Unit Placement Techniques for Complete and Incomplete Observability", IEEE Transactions on Power Delivery, Vol. 20, No. 4, October, 2005,pp 2381-2388

[10] M. M. Eissa, "Development and investigation of a new high-speed directional relay using field data," IEEE Trans. Power Del., vol. 23, no. 3, pp. 1302–1309, Jul. 2008.

[11] M. M. Eissa, "Evaluation of a new current directional protection technique using field data," IEEE Trans. Power Del., vol. 20, no. 2, pp. 566–572, Jul. 2005.

Author Profile

Akash W. Rahangdalehas completed his degree from Government College of Engineering, Chandrapur in the year of 2012. He is presently working as a Head of Electrical Engineering Department at Navsahyadri Institute of Technology, Pune.