CHAPTER - VIII

CONCLUSION AND FUTURE SCOPE OF WORK
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In view of the extreme importance of protective schemes in present day applications in power apparatus and systems, it was thought to be worthwhile to indulge in development of a few of such schemes using microprocessor. This idea has led to the efforts presented in earliest chapters of this work which covers:

- Microprocessor based combined system protection against under and over-voltage, single phase and reversed phasing (Chapter II);
- Microprocessor based bidirectional operation of three phase induction motor with protection against single phasing, over and under-voltage (Chapter III);
- Microprocessor based phase and fault identifier (Chapter IV);
- Microprocessor based on-line monitoring of earth leakage current with system protection against earth leakage (Chapter V);
- Microprocessor based generalised overcurrent protection schemes, (Chapter VI).
- Microprocessor based temperature monitoring, control and protection (Chapter VII).

Some of the developed systems cited above are new and some are improved versions of designs already in existence. The general salient feature of all the systems developed is, these can be used in any existing installations without calling for major modifications in
The replacement of existing conventional protective systems with the microprocessor based one enhances the reliability, efficiency, flexibility with simultaneous reduction in cost and time of operation. These improved systems also have supervisory capabilities as an additional advantage.

In most of the developed systems embodied in this thesis, an attempt has been made to use the simplest possible sensor circuit in order to achieve greater reliability. This also helps to provide an appropriate signal for various disturbances and faults from the sensor. In some of the developed systems conventional sensors vis, current transformers, potential transformers, core balance transformers etc. have been used and in others new nonconventional sensor circuits have been developed.

As a continuation of the presented work, efforts may be given to develop a single improved as well as versatile systems by combining the individual systems outlined in Chapter II, III, and IV.

Also, in the work of Chapter III, a significant improvement may be a speed control feature in addition to the bidirectional rotation of the induction motor to suit special industrial applications.

In Chapter VI, the developed system may be improved by
incorporating a directional properly over and above the overcurrent protection schemes

Systems developed in Chapter II, III, IV, VI and VII may be combined together to build a protective system which will be capable of providing protection of three phase induction motors against both causes of faults and their effects.

However, the core idea was to develop protection schemes covering almost all important aspects using microprocessor for failsafe operation of the power system apparatus. The work presented in the earlier chapters has achieved the goal upto a significant measure but still now vast open area exists for the development of a generalized supervisory scheme suitable for centralized computer control. In this scheme, the basic principle may be to acquire data through different sensors and process these signals in the C.P.U. After necessary processing, a master protection scheme can be developed which can even lead to an expert system which will diagnose different faults and take proper protective actions to save the requisite power apparatus and systems