1. **INTRODUCTION**

India is the agricultural country. Optimum and timely water supply i.e. irrigation is the most important parameter for the agriculture. All the farmers are dependent on electric water pump for irrigation which needs its proper automation / protections.

Now a day's power failure is major problem in villages due to which farmers are facing lot of problems for their 3-Φ ac motors (pumps) used for irrigation of farms. In running condition of ac motor if any one phase fails, motor may damage due to reverse current from remaining phases. When power will reinstate, farmer has to go/come towards motor starter or he has to come back if he is not present in farm. Also the frequent power cuts and low voltage supply create big hurdle to the farmer and thus it needs continuous manual monitoring. To avoid all these drawbacks a new system is proposed named “AN ENHANCED AUTOMATION OF IRREGATION SECTORS: COST EFFECTIVE GSM APPROACH WITH INTELLIGENT SENSORS”.

By using this proposed system a farmer can monitor power on/off, voltage supply level from home or any where using a mobile phone as well as he can switch on or off the motor manually in the farm. Different protections are incorporated in this system which are:

i) Phase fail protection: any one phase fails, remaining phases will be disconnected from motor by relay switching.

ii) Dry water protection: if there is no water in water source, motor will not start / become ON

iii) Field moisture protection: when complete farm will become properly wet, motor automatically becomes OFF

iv) Over/under voltage, current protection

This is a cost effective & motor preventive system for farmers. It has following features:

i) The motor can made ON / OFF by sending a simple message via a registered mobile phone. Also it can be switched on / off manually.

ii) Phase wise currents & voltages can be monitored on mobile display under ON / OFF conditions.

iii) Different timers can be set for switching the motor.
iv) It has IVR mode also by which motor is operated by pressing numbers 1, 2, 3, etc. instead of message.

2. **THE PROBLEM**

“AN ENHANCED & COST EFFECTIVE AUTOMATION IN IRRIGATION SECTORS: GSM APPROACH WITH INTELLIGENT SENSORS”

The system enhances automation in irrigation sectors due to various intelligent protections with cost effective GSM technique. It also monitors phase wise voltage & current, status of motor. The system control is carried out by either mobile message or IVR mode.