

ABSTRACT

The Design and Construction of a Remote Terminal Unit

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This project report deals with the design and construction of a Remote Terminal Unit (RTU). A Remote Terminal Unit (RTU) is a rugged, remote control and monitor unit designed to interface data gathering and control instruments directly to a computer based master station.

The Electricity Commission of Trinidad and Tobago (T&TEC), employs the RTU at various substations throughout the country. The RTUs are linked by a micro-wave unit to a main computer in the main generating station at Port-of-Spain. The RTUs are used to control and monitor the distribution of electricity in a particular area by commands received from the main computer at Port-of-Spain.

The new system was redesigned using OPTOMUS units, which are a complete family of intelligent digital and analog input/output controllers which operates as slaves to a host computer. Consideration was given to the fact that the T&TEC system was an expanding system so that the new design must be able to accommodate more control points when necessary. The same format of the operator-computer interface was maintained, since this would standardized the operating system with the other RTUs currently in operation.

The new design developed, was of a greater degree of functionality than the present SCI system, since it could accommodate more control points and carry out more functions. The most significant advantage of this new design is that the cost of this new unit with its added features would be less than the present SCI System. Another advantage of the new system is that since it was locally developed, it would be easier and cheaper to maintain which is a major problem with the present SCI system.