

ECE SENIOR DESIGN PROJECT 2000-2001

SHIPBOARD ISLAND POWER ENERGY MANAGEMENT SYSTEM

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of the
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SHIPBOARD ISLAND POWER ENERGY MANAGEMENT SYSTEM
ECE SENIOR DESIGN PROJECT 2000-2001 FINAL REPORT

Abstract

Seafaring vessels rely completely upon the continuous operation of their electric plant, given its support of many essential subsystems: including navigation, communication, and steering. A dead ship is quite literally at the mercy of the sea. Consequently, study of shipboard electric power systems under various conditions is a matter of great importance.

The objectives of this project are the collection of shipboard system component and system data of a common US Coastguard shipboard power distribution system, the development of a power flow model as well as the development of menu-driven interface for model data acquisition.

The validation of the model will be done utilizing MATLAB-based Power Flow Software developed by Drexel's CEPE. The product will support steady state conditions/solutions only, and will focus on the simulation of a shipboard power system response to contingencies including line power outages (in the case of fire, flood, collision etc.) and generator outages (caused by overheating, line shorts, system grounds, etc.). To facilitate the objective of integrating the new interface with the existing software sub-module, the software environment shall be MATLAB™.

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