# Case Study:
Barrington Systems at Stanford Research Institute (SRI)
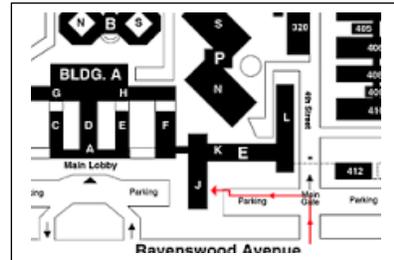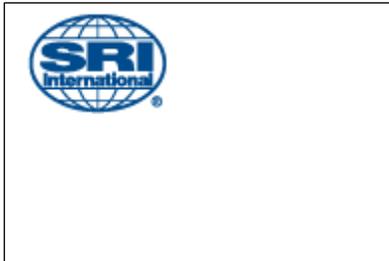
Headquartered in Menlo Park, California. The trustees of Stanford University established SRI in 1946 as a center of innovation to support economic development in the region.

The organization was founded as the Stanford Research Institute. SRI formally separated from Stanford University in 1970 and became known as SRI International in 1977. SRI describes its mission as creating world-changing solutions to make people safer, healthier, and more productive.[1] It performs client-sponsored research and development for government agencies, commercial businesses, and private foundations. It also licenses its technologies,[2] forms strategic partnerships, sells products,[3] and creates spin-off companies.

Background:

The Building Automation function at SRI is not only about making the buildings habitable and suitable for work. It also includes managing energy consumption. IN addition to HVAC there are other sensing and control systems.

Almost all the HVAC and building automaton function is performed using Barrington Control Systems. These consist of MicroStar field I/O units connected by RS485 and a head end controller called a LanStar. Each LanStar can support two trunks of 16 MicroStar's. Barrington also provided visualization and HMI software. The LanStar's are connected together to perform the system. In some cases, the connections are made using the LanStar ability to connect to others using the inbuilt Lan system. In (most) other cases the LanStar is connect to the operations control room using home runs, phone lines and whatever was used at the time of installation.

Goal and Justification

It's expensive to replace field I/O modules and cheap to replace controllers. The main reason for the massive discrepancy in price is the cost of labor and conduit required to rewire all the field devices to new I/O modules and all the time troubleshooting the problems that arise from out of date drawings and labels.

Replacing the controllers buys time – it allows you to spread the project over many years and it allows for a phased approach which means shutdowns are required less often. It also suits budgeting – allowing an facility to pay for an upgrade over many years instead of all at once.

The goal of this project is to replace the entire Barrington System in a cost effective, production effective and resource effective way. This will be done by slowly removing the LanStar's – replacing them with a gateway that connects the Microstars to a new BACnet enabled building management system.
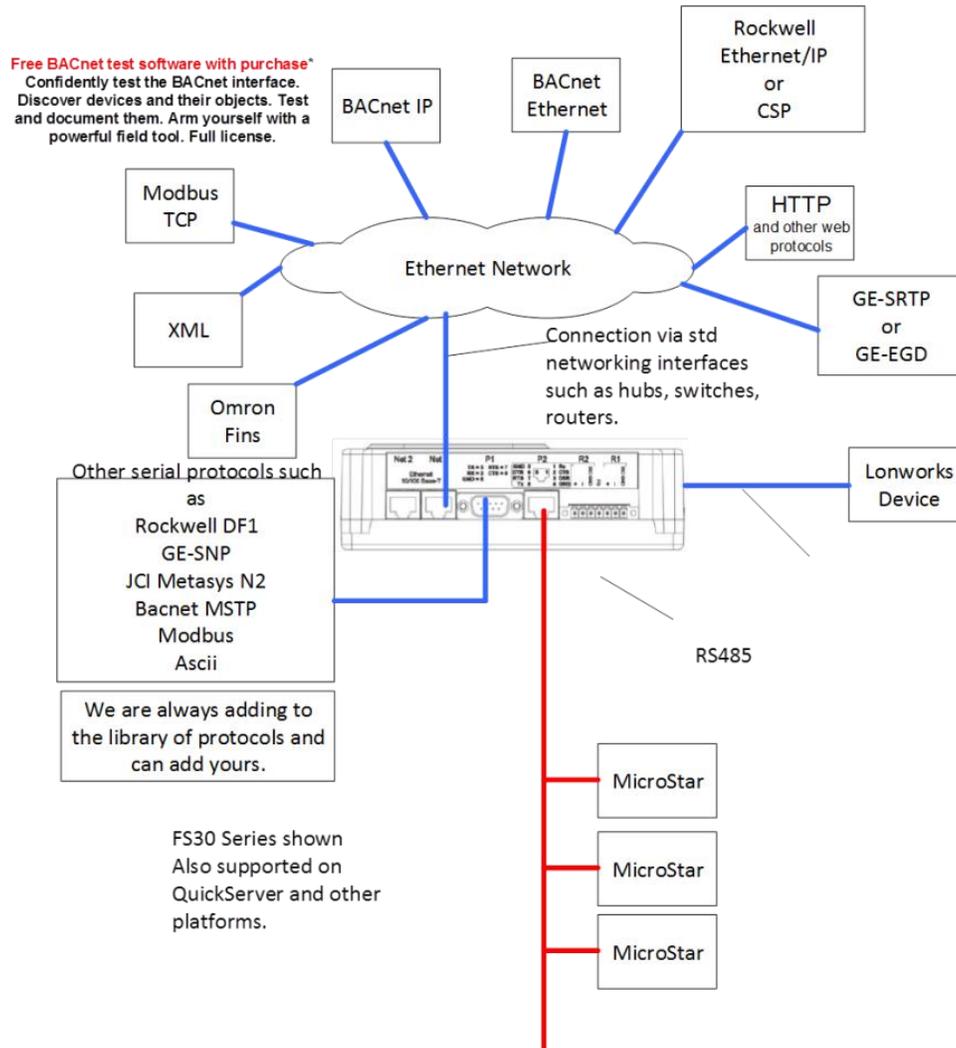
FS-8705-10 Barrington Microstar Protocol
(Lanstar Replacement)

Making Life Easier

The Barrington LanStar and MicroStar gateways are capable of auto discovery, for example, you can connect a gateway to a LanStar. It discovers all the MicroStar's connected to it (on both trunks) and then automatically makes the corresponding BACnet objects for each Ai, Di, Ao, Do etc. in each MicroStar.

Discovery saves time and improves accuracy.