

## Feature No. 44: Tribi Embedded Technologies

In the past, industrial automation in India often suffered from inefficient energy usage due to poor power conditions and lack of automated solutions. The computerization of industrial machines in India was limited and expensive, since traditional Computer Numerical Control (CNC) machines were based on proprietary hardware and out of reach of smaller companies. Common appliances such as air-conditioners and refrigerators were also extremely inefficient in power usage, cooling capacity and temperature control due to the fixed speed of their compressors.



In 2001, a group of engineers working on embedded systems design at Cimtrix systems, one of India's leading manufacturers of machines for the armature winding industry, recognized the energy efficiency problem in India. They formed an independent company called Tribi Embedded Technologies, to focus on developing products for Industrial Automation and appliance control.

Tribi started out by developing a series of intelligent, variable-speed drives to alter the speed of air-conditioner and refrigerator motors. By varying the speed of the compressor, companies manufacturing these devices could develop complex energy-saving schemes to increase efficiency by 20 to 35 percent. The relatively low cost and flexible, compact design meant that compressor manufacturers could easily integrate these drives into existing appliances.

Tribi also understood the need for computer controlled machinery in industrial automation. While standard CNC systems were targeted at lathes and drilling machines, there were several types of 'Special Purpose Machines' such as printing, textile, packaging and grinding machines that did not have standard CNC systems. Tribi's 'CimPACT' CNC system addressed this problem by providing companies with an economical control system that provides all the necessary features for these machines.



Tribi's products are extremely innovative, and have become extremely popular with manufacturers in India, due to the remarkable gains in efficiency. Almost 70 percent of the electrical energy in the world is used by motors in industries, commercial establishments and homes, so the reduction in energy consumption provided by Tribi's efficient drive controllers and CNC systems has the potential to significantly reduce electricity usage in India. Tribi recently received \$1.6 million in funding from Sequoia Capital, which will allow the company to enhance R&D and expand its operations.

For more information on Tribi, visit <http://www.tribitech.com/>