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UPDATES FROM KANNIGAPURAM CAMPUS

THIS WEEK'S FEATURED STORY

Pneumatic Tube Systems



Pneumatic
control
room

USES OF PTS

Pneumatic Tube Systems (PTS or 'chutes') are used to transport cylindrical containers through a network of pipes, blowers, diverters and stations. These containers called carriers are designed for transport of blood and other samples between clinical areas (ICUs, wards, Emergency) and labs.

This system can also transport various other items such as medicines, blood products, medical records, documents and pathology samples.

HOW IT WORKS

Carriers move through this network from one station to another at a standard speed of six metres per second using blower units that generate the necessary vacuum or compressed air in the PTS to send carriers to their target stations. All system components are constantly monitored by a master control unit.

The CMC

Kannigapuram campus has a state-of-the-art PTS (Sumetzberger GmbH, Vienna) working on Linux. Using this system, samples from the Emergency Department or the ICU can reach the lab in less than a minute.

There are 130 sending and receiving stations spread over 12 zones across the hospital.

The system also uses technology such as Radio Frequency Identification (RFID), auto-unload & multi-carrier lines.

In the future, it can integrate with blood sample sorter systems & auto analyzers in our laboratories.



In 1861, the London Pneumatic Despatch Company built a system large enough to move a person. The inauguration of the new Holborn Station on 10 October, 1865 was marked by having the Duke of Buckingham, the chairman, and some company directors blown through the tube to Euston, a 5-min trip. (source: wikipedia)



POWER TRANSFER

The system also has high-capacity redundant transfer units called Power Transfer Units (PTU).

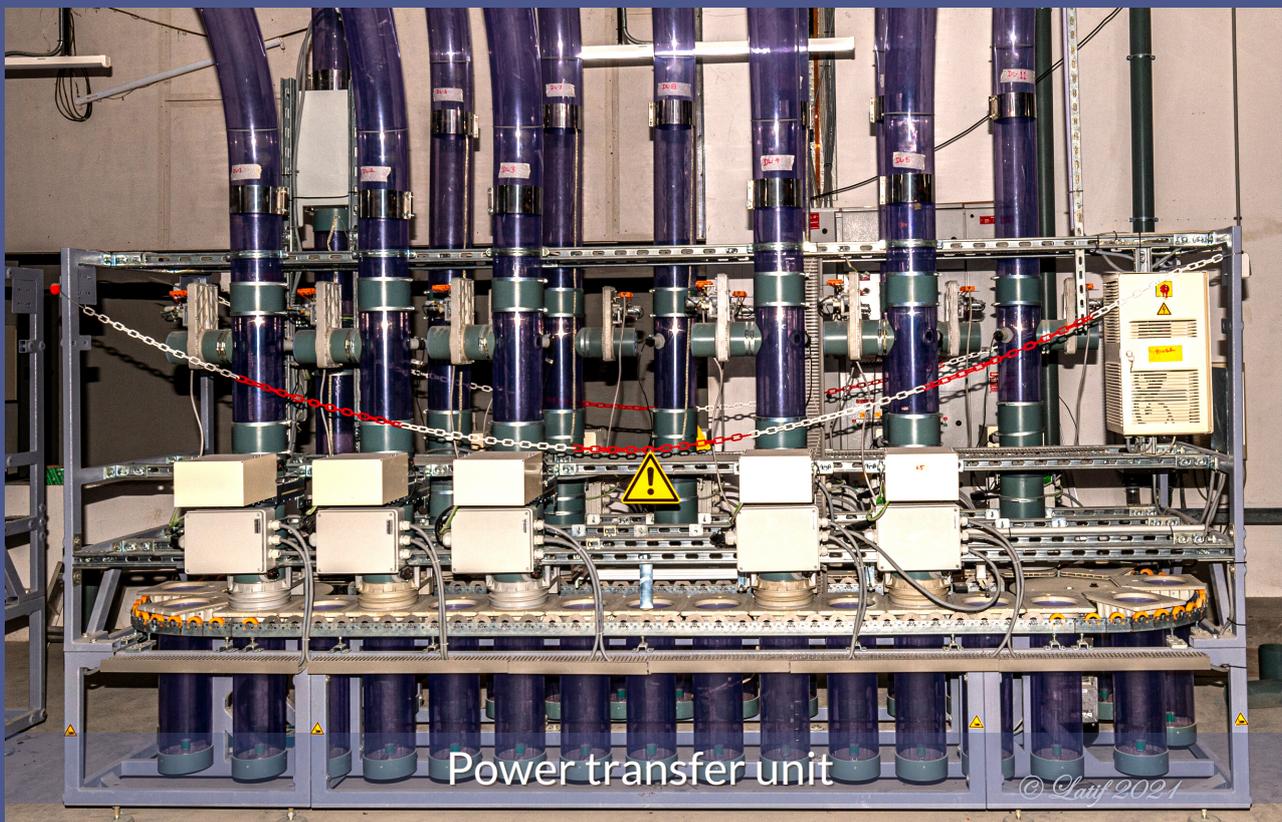
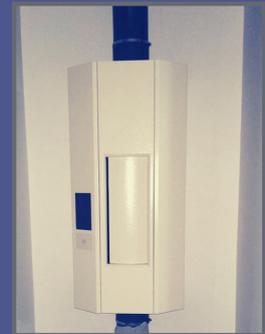
They are central crossing units and the heart of multi-line pneumatic tube systems. They connect all independent lines to each other (like a railway junction), forming a network and making transfer of consignments possible across different zones. Thus, every station is quickly accessible from every other station in the system.

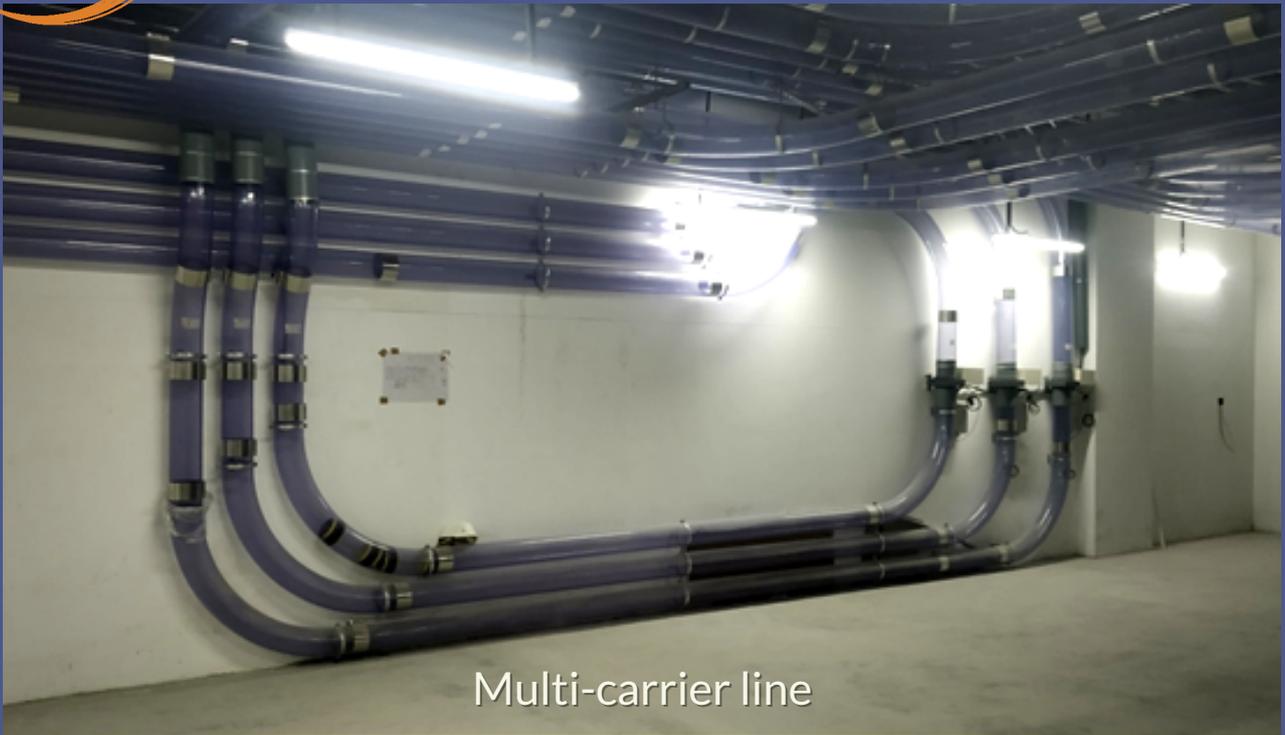
The PTU maximises throughput by allowing carriers to move in both directions simultaneously, and can

facilitate overtake function for priority or emergency carriers. Empty carriers can be stored in the PTU. In case all the carriers assigned to a location are being used, other carriers can be asked for from the PTU.

The system has been designed to efficiently handle a load of several thousand transactions per day.

The station





Multi-carrier line



Blower, air diode and frequency inverter

Did you know?

CMC already has an existing pneumatic tube system, funded in 2003 by USAID ASHA, which significantly improved patient services by reducing turn-around times for lab investigations.

We acknowledge inputs from Mr. Joe Lenin & Mr. Arul Prakash from the Department of Biomedical Engineering.