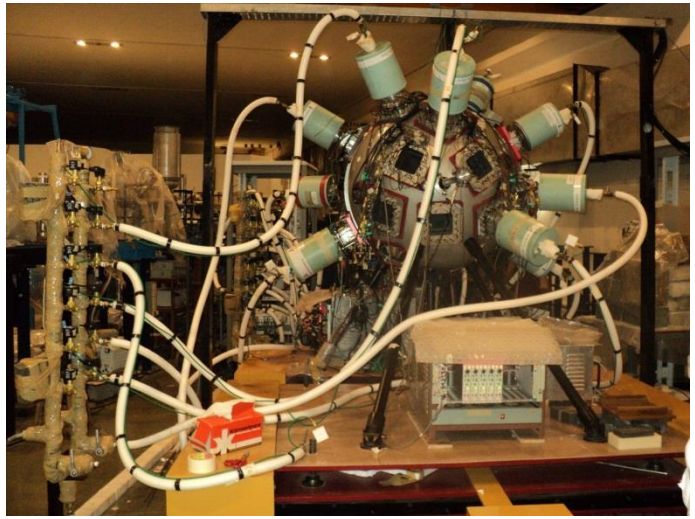
Electronics and Instrumentation for the Research Lab



INGA - TIFR

Indian National Gamma Array

Rajaneesh Donthi
DNAP, TIFR

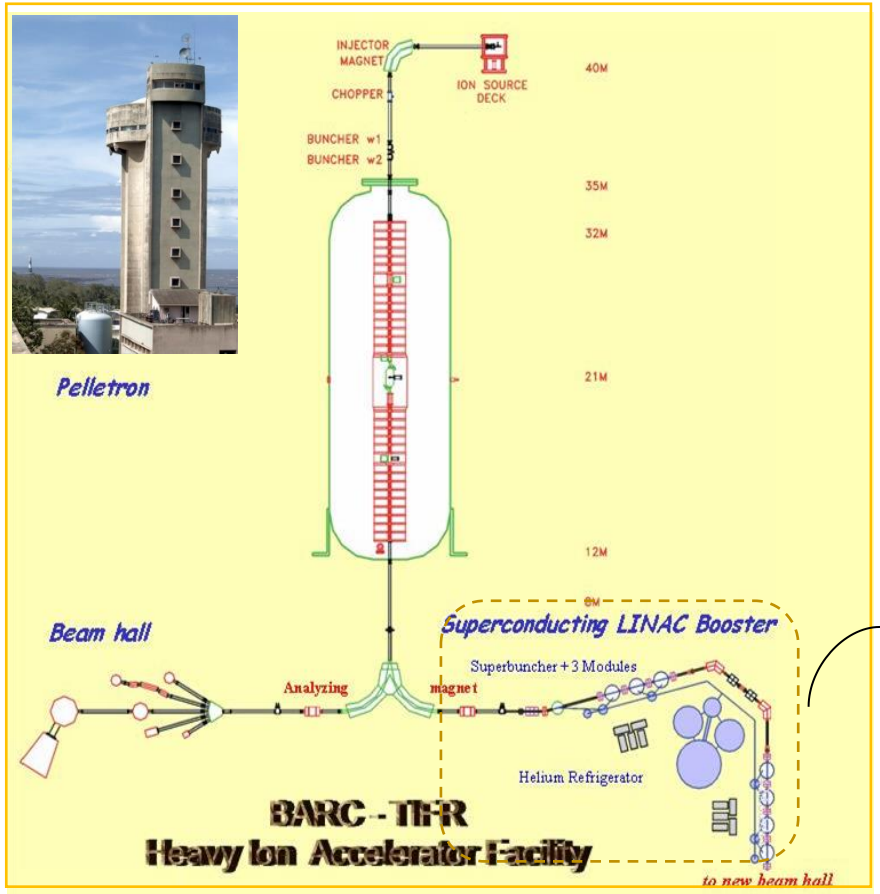
Hardware and Software implementation at Research labs

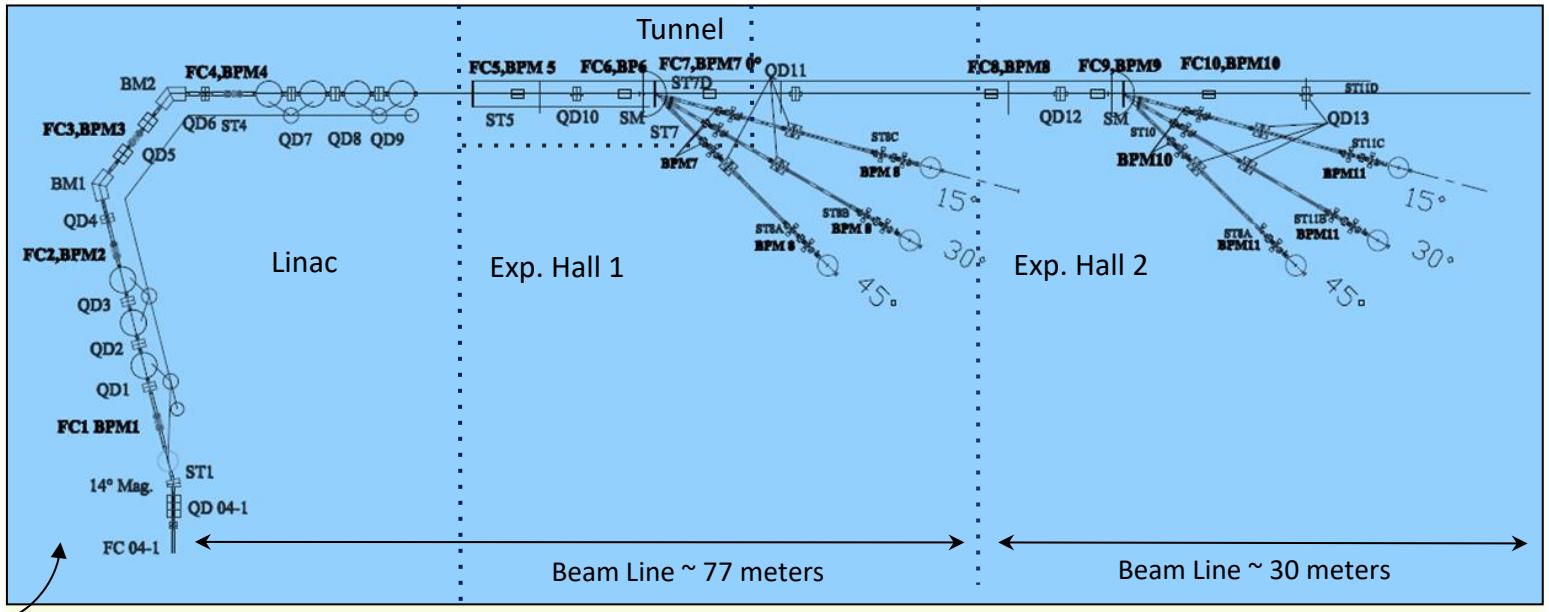
- TIFR Mumbai DNAP PLF
- GSI Germany FAIR facility
- GANIL France
- Canberra Canberra
- DRDO Antidoron systems
- TIFR Hyderabad
- BARC NPD, IUAC , SINP, VECC

Technical skills

- Digital and Analog Electronics
- VLSI Design and Verification.
- Radiation Detection
- Detector electronics
- Signal Processing (TFA, CFD, SHA_Amp etc)
- Photonics scintillators
- DAQ systems
- RF Electronics
- Anti Drone Systems (Indian Defense)

Pelletron Linac Facility at TIFR Mumbai





LINAC Specifications

Energy gain 14MV/q

Resonators 28 nos

Heavy ions upto A ~80

E/A ~ 5 to 12 MeV

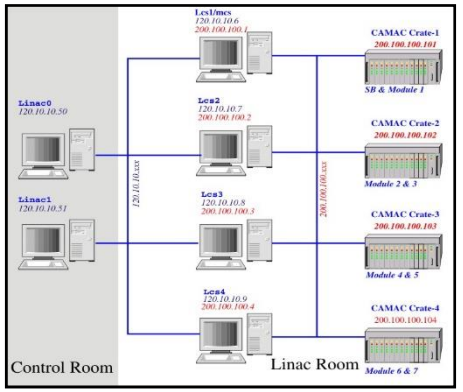
Optimum velocity ~0.1

Bunch width 200 to 1000ps

Beam Intensity 0.1 to 10 pnA

Existing LINAC Control System

- RF Control System – CAMAC hardware JAVA
  Beam Transport System -JAVA
- Beam Diagnostic System – JAVA
- Cryogenic Control Station –Qt
- Vacuum Monitoring System -LabVIEW
- Slit Controller- EPICS Qt
- Motor Controller for Coupler –EPICS Qt
- Radiation Monitors -LabVIEW



CAMAC RF Controller

Ethernet LAN Network

Magnet Controller

Steerer Controller

Faraday Cup Controller

Beam Profile Monitor

Motor Controller-RF Coupler/Tuner

Slit Controller

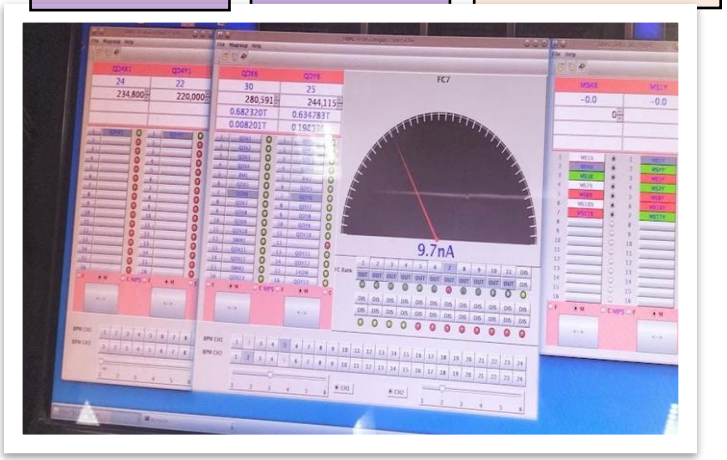
Vacuum Monitor

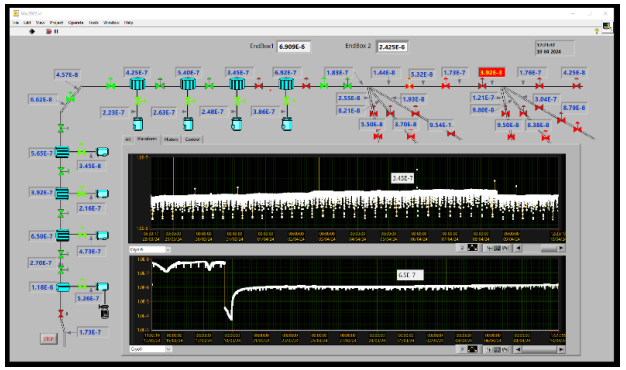
Radiation Monitors

Cryo Valves Controller

He & N level

Cryo Temp

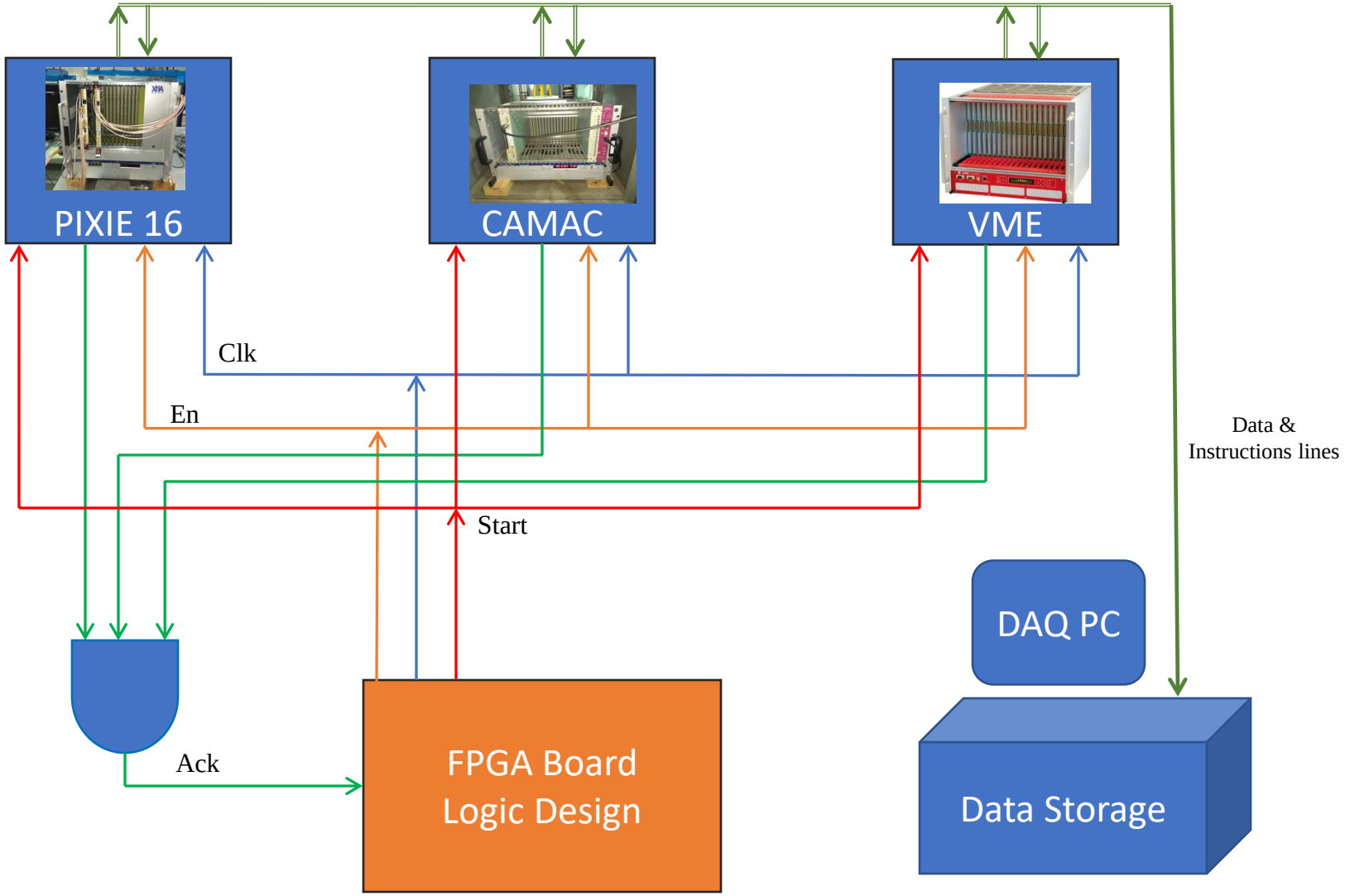


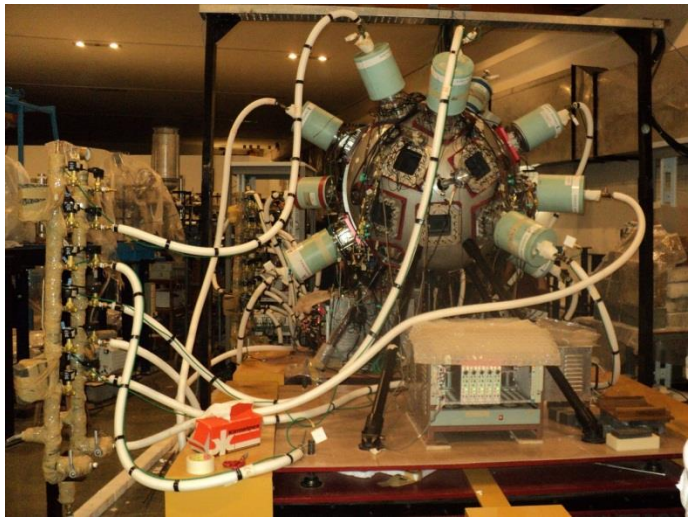


Central Electronics Facility TIFR Hyderabad

- Supporting to the Labs design developments and present Requirements
- Collaborative works form National and International labs
- Design and Development works for next generation.
- Looking for the Interns to motivate the young generation towards Science research.
- Guest lectures.

Next Project
Multi crate (DAQ system) synchronization





rajaneeshd@tifrh.res.in

Thank You

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