

## CHEMIN

### Some Notes :- (As far I learnt)

- chemin means chemistry and mineralogy.
- chemin identifies and quantifies the minerals present in rocks and soil delivered to it by the rover's robotic arm.
- chemin data is useful in the search for potential mineral energy sources for life or indicators for past habitable environments.
- Chemin is an X-ray powder diffraction instrument that also X-ray fluorescence capabilities.
- chemin utilizes a microfocus cobalt X-ray source, a transmission sample cell, and an energy discriminating X-ray sensitive CCD to produce simultaneous 2-D X-ray diffraction patterns and energy-dispersive histograms from powdered samples.
- Raw CCD frames are processed into data products onboard the rover to reduce the data volume.

## modules

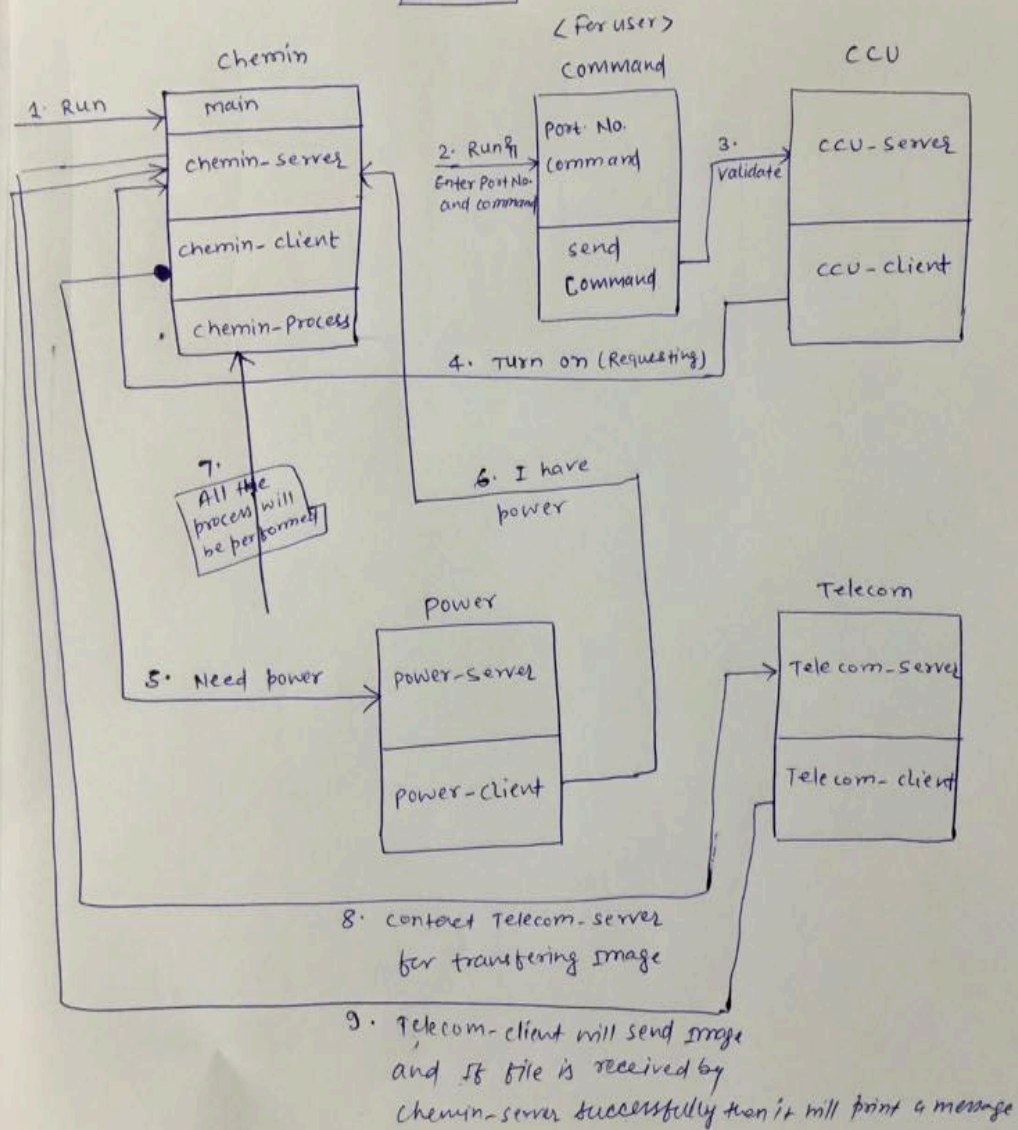
### \* Requirement Modules

- i> funnel
- ii> sample cell & wheel
- iii> X-Ray Beam
- iv> CCD (charge couple Device)

### \* Project modules

- i> chemin
- ii> CCU
- iii> power
- iv> Telecom

# Schema





### Project schema explanation

1. Run cheminMain from chemin package
2. Run command from chemin package
3. Send Command "chemin on" through port No. 9008 and validate from ccu-server to request turn on.
4. ccu-client will request turn on from chemin-server
5. chemin-client will request power from power-server
6. If power is available (for that it will send a requirement to json file for power requirement) then power-client will send a confirmation that I have power to chemin-server.
7. and then chemin-process will start and then  

We will  
add more  
process  
later

{

→

cryo

cooler

will

on

→

will

remove

funnel

contamination

→

checking

CHIMRA

about

samplecell

wheel

→

cleaning

sample

cell

→

turning

on

funnel

piezo
8. once process completed by chemin-process then chemin-server will contact to telecom-server to send image through X-ray diffraction.
9. Telecom-client will send image to chemin-server and print

message if file transferred.

10. send command power off to shut down all process.

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Note: → we have implemented few commands.

Later in few weeks:-

1. Adding & implementing more command
2. Adding more task to be performed by chemin-process.
3. Optimization of code.
4. Debugging
5. Testing (all commands & task)
6. presentation / Thesis report