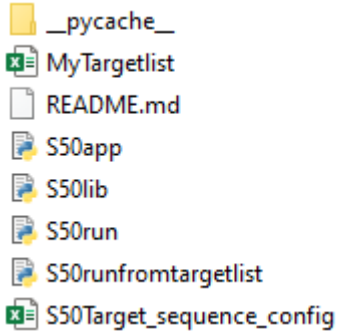
S50lib – a small python library to operate seestar from excel file data

- The basic :
  - Excel file for input information
  - S50app for operation the seestar from excel file information
  - S50lib with some basic function for S50app



Excel file for a plan night or 1 target

- How to fill the excel :
  - Name of target
  - Ra, Dec in degree
  - ExpTime : expose time in micro second
  - Save All Frame : save all the frame take by seestar
  - Autofocus : the autofocus will be done for each new target
  - For one target : fill with 0 daybegin, hbegin,etc

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
NAME	RA	DEC	LP_filter	ExpTime	DitherPix	DitherIntv	gain	Save All Frame	Autofocus	Number valid frame to reach	J2000	Daybegin	Hrbegin	Minbegin	Dayend	Hrend	Minend	Shutdown After Target
M81	9,95888889	68,9505556	True	20000	12	20	80	False	True	100	False	8	23	0	8	23	30	False
M 97	11,27	54,8861111	True	25000	12	20	80	False	True	100	False	8	23	30	9	0	30	False
NGC 7023	21,0313889	68,2663889	True	25000	12	20	80	False	True	100	False	9	0	31	9	2	0	False
M 81	9,95888889	68,9505556	True	20000	12	20	80	False	True	100	False	9	2	1	9	3	30	False
IC 63	1,01639	61,0425	True	25000	12	20	80	False	True	100	False	9	3	31	9	4	55	True

How does it work

- The python app check every 20s the clock time of computer then:
  - If day ≥ daybengin or day end, then if hour ≥ hbegin or hend, then the sequence is launch or stopped
  - If Shutdown After Target is True for the target then the seestar will shutdown after sequence

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
NAME	RA	DEC	LP_filter	ExpTime	DitherPix	DitherIntv	gain	Save All Frame	Autofocus	Number valid frame to reach	J2000	Daybegin	Hrbegin	Minbegin	Dayend	Hrend	Minend	Shutdown After Target
M81	9,95888889	68,9505556	True	20000	12	20	80	False	True	100	False	8	23	0	8	23	30	False
M 97	11,27	54,8861111	True	25000	12	20	80	False	True	100	False	8	23	30	9	0	30	False
NGC 7023	21,0313889	68,2663889	True	25000	12	20	80	False	True	100	False	9	0	31	9	2	0	False
M 81	9,95888889	68,9505556	True	20000	12	20	80	False	True	100	False	9	2	1	9	3	30	False
IC 63	1,01639	61,0425	True	25000	12	20	80	False	True	100	False	9	3	31	9	4	55	True

Step by Step

- 1/ Enter the IP adress of Seestar your in S50app.py
- 2/ Power up Seestar and with app and be sure that in Alt Z mode the leveling is ok
- 3/ Cleanup the Mywork directory on Seestar
- 4/ Fill the S50Target_sequence_config.xlsx file
- 5/ launch S50app from python shell

```
@author: sauss
"""

import S50lib as S50
import socket
import json
import geocoder
import time
from datetime import datetime
from astropy.coordinates import SkyCoord, EarthLocation, AltAz
from astropy.time import time
import astropy.units as u
from astroquery.simbad import Simbad
from astroquery.ipac.ned import Ned
import numpy as np
import math
import pandas as pd

####################################
#SETUP OF USER (NETWORK INFO AND GEOLOC)

S50.HOST="10.0.0.1"
S50.PORT = 4700
S50.cmdid = 999


data=pd.read_excel('S50Target_sequence_config.xlsx',dtype=object)
TargetSeq=data.dropna()
```