Official BLP API Documentation

This document offers all the info you need to use the API. It is based on the last one but with more info and more practical and concrete examples. It will be continuously updated so please ask question.

//TODO

- Add set_burn(self,ms)
- Add start_test(self)
- Add calibrate(self)
- Add start_benchmark(self)

The API is split into 4 classes that ar responsible for wifi connection, wifi communication, system data, and system debugging. Along with constants so that you do not have to do any weird elaborate indexing. So the top of the file looks something like this.

```
# API Imports
from pycode import Wifi_Host, Telemetry, Metrics, System_Health
from pycode import PT1,PT2,PT3,PT4,PT5,FS,TS,RR
```

Metrics is greyed because I am not using it right now

The beginning of the source file should look like this and replace my ip with the ip address of your machine

```
#Beginning of Code
                        #my ip
wifi = Wifi_Host("192.168.1.215",4)
sys  = System_Health()
tel  = Telemetry(wifi,sys)
```

Next you have a lot of freedom on how to interact with the engine and electrical system so here are the main functions. You should only be interacting with the telemetry class so keep that in mind

```
class Telemetry:
```

```
def set_coil(self,ms):
```

- **Parameters:** integer in milliseconds
- **Function:** Sets the coils to spark frequency

- **Returns:** 0

```
def send_data(self):
```

- **Parameters:** none
- **Function:** sends data to pi
- **Returns:** 0

```
def get_data(self):
```

- **Parameters:** none
- **Function:** gets data from pi
- **Returns:** 0

```
def open_valve(self, num):
```

- **Parameters:** the valve number (not sure what the valve number is
- **Function:** open valve
- **Returns:** 0

```
def close_valve(self, num):
```

- **Parameters:** the valve number (not sure what the valve number is
- **Function:** close valve
- **Returns:** 0

```
def spark_coil(self,on):
```

- **Parameters:** int 1 or 0 indicating on or off
- **Function:** start sparking coil
- **Returns:** 0

```
class System_Health:
```

```
def get_pi_status(self):
```

- **Parameters:** none
- **Function:** prints box side system stats
- **Returns:** list of stats

```
def get_pi_status(self):
```

- **Parameters:** none
- **Function:** prints computer side system stats
- **Returns:** list of stats

```
def get_sys_status(self):
```

- **Parameters:** none
- **Function:** prints both systems together
- **Returns:** list of all stats

List of Debugging Metrics

```
py_stats['init wifi connection']    = 'null'
py_stats['wifi message tx']         = 'null'
py_stats['wifi message rx']         = 'null'
py_stats['v1 open command']         = 'null'
py_stats['v2 open command']         = 'null'
py_stats['v3 open command']         = 'null'
py_stats['v4 open command']         = 'null'
py_stats['v5 open command']         = 'null'
py_stats['coil on command']         = 'null'
py_stats['cal command']             = 'null'
py_stats['test command']            = 'null'
py_stats['BM command']              = 'null'
```

```
pi_stats["valve 1 fb"]              = 'null'
pi_stats["valve 2 fb"]              = 'null'
pi_stats["valve 3 fb"]              = 'null'
pi_stats["valve 4 fb"]              = 'null'
pi_stats["valve 5 fb"]              = 'null'
pi_stats["coil fb"]                 = 'null'
pi_stats["pt 1 fb"]                 = 'null'
pi_stats["pt 2 fb"]                 = 'null'
pi_stats["pt 3 fb"]                 = 'null'
pi_stats["pt 4 fb"]                 = 'null'
pi_stats["pt 5 fb"]                 = 'null'
pi_stats["lc fb"]                   = 'null'
```

```
pi_stats["thermo 1 fb"]             = 'null'
pi_stats["thermo 2 fb"]             = 'null'
pi_stats["abort pt 1 "]             = 'null'
pi_stats["abort pt 2 "]             = 'null'
pi_stats["abort pt 3 "]             = 'null'
pi_stats["abort pt 4 "]             = 'null'
pi_stats["abort pt 5 "]             = 'null'
pi_stats["abort pt 6 "]             = 'null'
py_stats['cal command fb']          = 'null'
py_stats['test command fb']         = 'null'
py_stats['BM command fb']           = 'null'
```

Examples:

```
wifi = Wifi_Host("192.168.1.215",4)
sys  = System_Health()
tel  = Telemetry(wifi,sys)

data_array = []
while True:
    #open valve 1 3 and set coil frequency to 80m
    tel.open_valve(1)
    tel.open_valve(3)
    tel.set_coil(80)
    #send those commands to pi
    tel.send_data()
    '''
    engine valves open
    '''
    #get data from pi
    data_array = tel.get_data()
    #print pressure form pressure transducer 1
    print(data_array[PT1])
    #print pressure form pressure transducer 2
    print(data_array[PT2])
    #print refresh rate of the system
    print(data_array[RR])
    #gets system stats for debugging purposes
    debug_data = sys.get_sys_status()
    print(debug_data)
    time.sleep(5)
```