**DIAGRAMS:**

* OLED DISPLAYS :

<https://app.diagrams.net/#G1f7vEyCFBt-i64OE43x6PpR02J5cx05Fv>

* Data Structures: <https://app.diagrams.net/#G1RiNkGSr3AT2smYwJ8dRmKB8R78QdqU6j>

**GATEWAY DESIGN AND FUNCTIONS,  
Includes parsing and oled function description and formats:**

/\*\*

\* Init serial

\* set up and check Lora comm

\* set up and check OLED display

\* set up SD card

\* create data structure (vector) for node\_name[animal\_type]/node\_name[info]

\* \*\*\*\*\* check whether it's better to save this on the SD card because it

\* \*\*\*\*\* might surpass the esp's memory\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* connect to internet

\* establish connection with firebase

\*

\* start waiting for info

\*\*\*\*\* upon receiving a packet from a node with unrecognized name, add it to the ds \*\*\*\*

\* adding a button, On/Off switch, when pressed add configuration option to gateway (meaning, add new nodes to ds)\*\*

\*

\*/

/\*\*

\* LORA:

\* PRINT AT ALL TIMES:

\* - connection to internet status (maybe visually too, the 3 bars)

\* - number of nodes connected

\* - battery indicator (?)

\*

\* Node Packages Format (each field is seperated by the number 0x2C ): [

\* Weight\_scale [2 + 1 byte][ 0->2 ] - Device name ,

\* data\_rfid[10 + 1 byte][ 3->13 ] - current rfid reading (tag),

\* //status\_rfid - used for rfid (node internal),

\* val\_weight [3 + 1 byte][ 14->17 ] - current reading of the scale,

\* temp [3 + 1 byte][ 18->21 ]- temperature,

\* hum [2 + 1 byte][ 22->24 ]- humidity,

\* vbatt [2 + 1 byte][ 25->27 ] - voltage,

\* soc [2 + 1 byte][ 28->30 ]- humidity param,

\* count [5 byte][ 31->35 ]- counter of reads,

\* [36] = carriage return,

\* [37] = 0X0A,

\* [38 ] = 0) ]

\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\* While receiving a packet OLED indicator, if it is irrelevant (random lora)

\*\*\*\*\*\*\*\*\*\*\*\*\*\* print an appropriate message as well \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* AFTER RECEIVING A PACKET, LOG THE INFO ON THE SD CARD + add time stamp(tbd)

\*/

//assuming we converted all the chars to string and got parameters by indexes:

/\*\*

\* FIREBASE Format : [ "BEGIN",

\* "ANIMAL TYPE",

\* "AnimalID" (tag),

\* "AnimalWeight",

\* "Temperature",

\* "Humidity",

\* "END" ]

\*/