Weekly Status Report
Week 2

EECE 460

MCU TNC Design

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Accomplished tasks for this week:

- Sent BOM to mentors for parts needed to complete prototype board
- Received perfboards
- Scheduled time to pick up components from mentors
- Created more AX.25 handling functions in the code base
    - Specifically spent some time removing global variables and implementing structs to hold data that we need to access

Planned tasks for next week:

- Fix the AFSK generation code due to phase errors in wave shape
- Flesh out more of the AX.25 protocol interpretation
- Run experimentation on lower level code to help with documentation
- Flesh out more of the AX.25 protocol interpretation

Examples of Completed Task

Example of some code to implement the struct type:

```
void remove_bit_stuffing(); //remove bit stuffing zeros after every 5 consecutive 1's
void slide_bits(bool* array,int bits_left); //discards bit stuffed 0 and slide remaining bits over bits over
//*****************************************************************************************************************

//General Program
//*****************************************************************************************************************
struct PACKET_STRUCT {
    //AX.25 Members
    bool AX25_temp_buffer[AX25_PACKET_MAX];//temporary stores bits received from radio, before formatting into AX.25 format
    bool *address;          //Pointer to address field in global buffer
    bool *control;          //Pointer to control field in global buffer
    bool *PID;              //Pointer to PID field in global buffer, only present for I frames
    bool *Info;             //Pointer to info field in global buffer
    int  Info_Len;
    bool *FCS;              //Pointer to fcs field in global buffer

    //KISS Members
    bool KISS_PACKET[KISS_SIZE];

    //CRC
    int crc;                //crc value after calculating data from PC
}global_packet;

void tx_rx();
//************* Handle bits received from Radio ***********************************************************
/*
 *  Function that simply loads a bit into the packet. Should be called
```

More code showing generation of AX.25 packet

```
//NEED TO CREATE AN AX25_PACKET MEMBER FOR STRUCT
//COMPLETE MEMCOPY INSIDE GENERATE AX_25()
void generate_AX25(){
    struct PACKET_STRUCT* local_packet = &global_packet;

    bool *curr_mem = &local_packet->KISS_PACKET; //keep track of what address to copy from
    //this is assuming that the packet has all the subfields full

    sprintf(uartData,"Good Packet!");

    local_packet->address = curr_mem;
    if(!compare_address(local_packet->address)){
        return false; //discard
    }
    curr_mem += address_len;

    local_packet->control = curr_mem;
    curr_mem += control_len;

    //SHOULD CONSIDER A VAR IN STRUCT TO INDICATE THAT A PID FIELD IS PRESENT OR THAT THIS IS AN I FRAME
    if(local_packet->control[0] == 0){ // 0 = I frame, 01 = S frame, 11 = U Frame
        local_packet->PID = curr_mem;
        curr_mem += PID_len;
    }

    local_packet->Info = curr_mem;

    //USE CRC HERE TO GENERATE FCS FIELD
    //local_packet->FCS = curr_mem;

    return true; //valid packet
}
```

Experiment Sheet:

Item	Purchase Link	Mouser Part #	Cost Per	Amount	Total per Comp	Received (by)
SparkFun TRRS 3.5mm Jack Breakout	https://www.sparkfun.	N/A	$3.95	4	$15.80	
Audio Cable TRRS - 3ft	vw.sparkfun.com/produ	N/A	$2.50	2	$5.00	
N-Channel MOSFET	ologies/IPAN70R360P7S	726-IPAN70R360P7SAUM	$1.17	2	$2.34	
2.54mm Pin Headers	E-Connectivity-AMP/872	M22-2010205	$3.68	4	$14.72	
				Sub-total:	$37.86	

Prototype Board Order Form:

Time Sheet

Item	Date/Time	Description	Hours
1	9/21/2020 5:30pm-7pm	Create BOM for prototyping components with Kobe and then send to Nolan	1.5
2	9/22/2020 3:30pm-6pm	Worked on AX.25 handling code, implementing struct	2.5
3	9/23/2020 5:30-7pm	Worked on AX.25 handling code, added some packet logic based on frame received types	1.5
5	2/25/2020 12pm-12:30pm	Retrieved perfboard from campus	0.5
		Total:	6