Weekly Status Report
Week 8

EECE 443

MCU TNC Design

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Accomplished tasks for this week:

- Corrected Appendix F for schematic issues.
- Created Level 1 Design Diagram to further display the internal schematics for out design.
- Got DAC code to generate 2 audio frequencies.
- Structured GitHub for more software development moving forward.

Planned tasks for next week:

- Get fully functioning code to read a bitstream array and generate the corresponding audio.
- Begin working on code to interpret KISS packets and setting associated flags for transmission.

Examples of Completed Task

Sample of DAC Code:

```c
static void MX_DAC_Init(void);
static void MX_TIM2_Init(void);


//output voltage
float value = 0.2;

uint32_t var;

//Sine Arrays
uint32_t sine_val[100];

uint32_t lowFrequency[LOWF];
uint32_t highFrequency[HIGHF];

//does conversion
void get_sineval(){
    for (int i=0;i<100;i++){
        //formula in DAC Document
        sine_val[i] = ((sin(i*2*PI/100)+1)*(4096/2));
    }
}

void edit_sineval(uint32_t *sinArray,int arraySize){
    for (int i=0;i<arraySize;i++){
        //formula in DAC Document
        sinArray[i] = ((sin(i*2*PI/arraySize)+1.1)*(4096/4));
    }
}
//HAL_DAC_Start_DMA(&hdac,DAC_CHANNEL_1,highFrequency,HIGHF,DAC_ALIGN_12B_R);
void bitToAudio(bool *bitStream, int arraySize){
    for (int i=0;i<arraySize;i++){
        if(bitStream[i]) HAL_DAC_Start_DMA(&hdac,DAC_CHANNEL_1,lowFrequency,LOWF,DAC_ALIGN_12B_R);

        else HAL_DAC_Start_DMA(&hdac,DAC_CHANNEL_1,highFrequency,HIGHF,DAC_ALIGN_12B_R);
        HAL_Delay(2);
        HAL_DAC_Stop_DMA(&hdac, DAC_CHANNEL_1);
    }
}

/* USER CODE END 0 */

/**
  * @brief  The application entry point.
  * @retval int
```
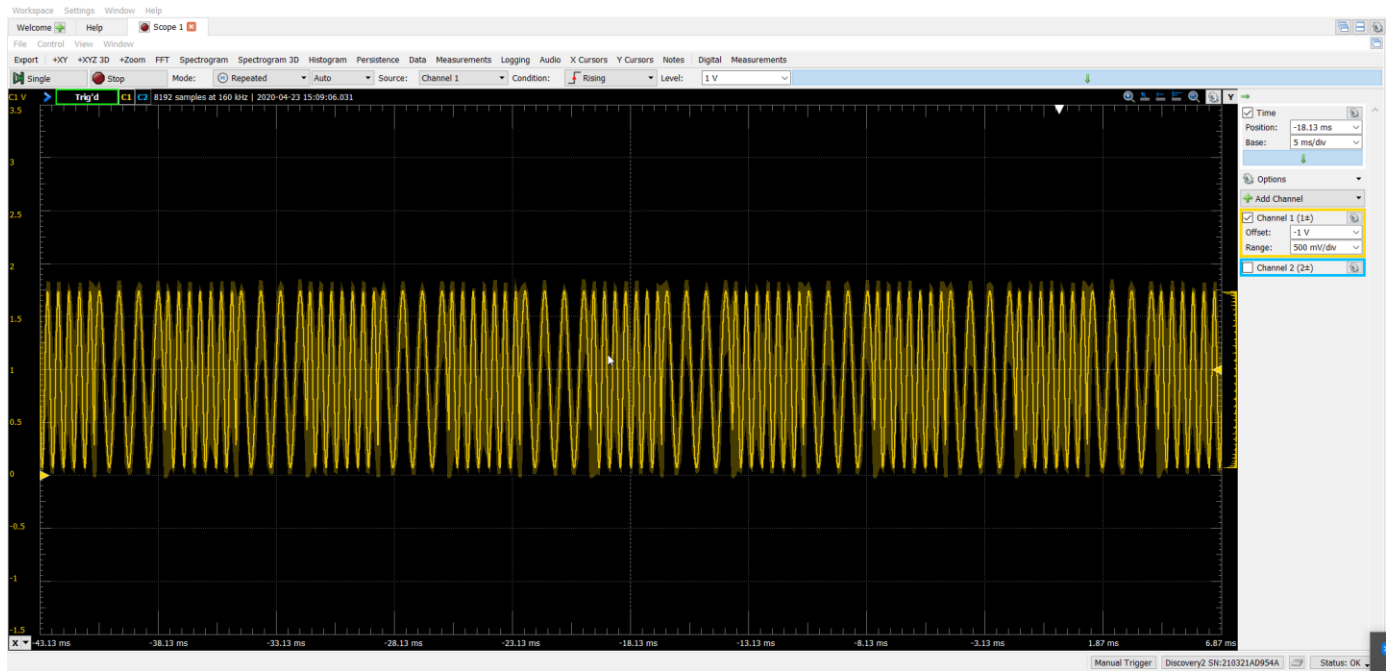
AFSK Output of {1,0,1,0....1,0}:

Time Sheet

Item	Date/Time	Description	Hours
1	4/18/2020 6:16pm-12:44am	Spent a while getting the DAC code written. Was struggling with pointer arrays within C. Created a formula for generating a sine wave based on variable sample rates.	5.88
2	4/19/2020 10:50 pm-12:32am	Wrote appendix sections for assignment 3 and created the design 1 diagram.	1.70
3	4/21/2020 6:10pm-11:32pm	Worked on assignment 3 with team member then began the presentations to be submitted on Sunday.	5.36
		Total:	12.94