

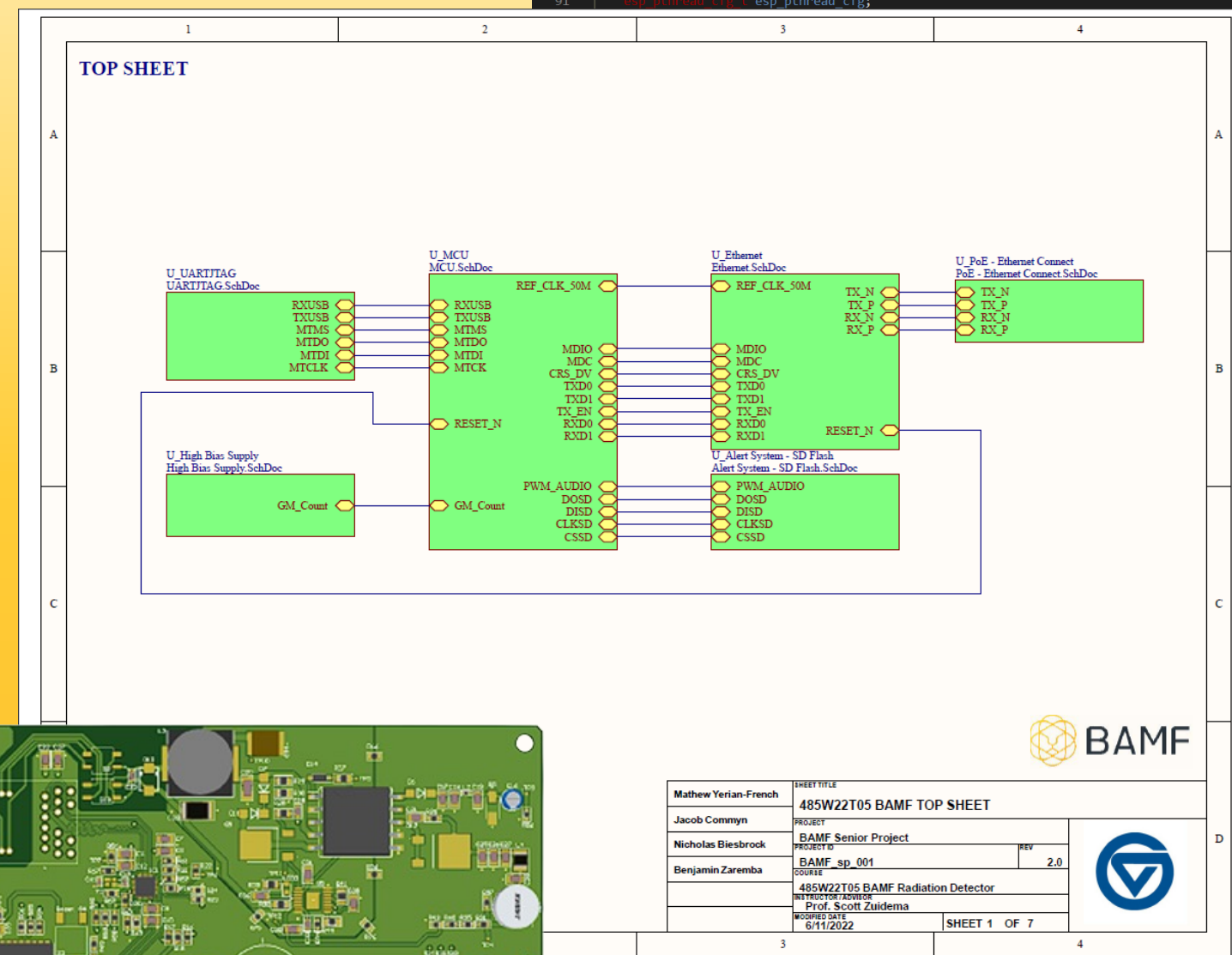
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Sponsors: BAMF, Paul Shields, Jeff VanOss

```

68 // Struct used to pass parameters among both threads
69 typedef struct _sensor_param {
70     double measurement;
71     char* location;
72     double thresh;
73     double id;
74 } _sensor_param;
75
76
77 void app_main(void)
78 {
79     // Software set flag, clear contents of SD card when enabled
80     if(FIRST_TIME_RUN)
81     {
82         sd_setup();
83         sd_clear();
84         sd_read();
85     }
86     else
87     {
88         // Thread init
89         pthread_t thread1, thread2;
90         pthread_create(&thread1, NULL, _thread1, NULL);
91         pthread_create(&thread2, NULL, _thread2, NULL);
92     }
93 }

```



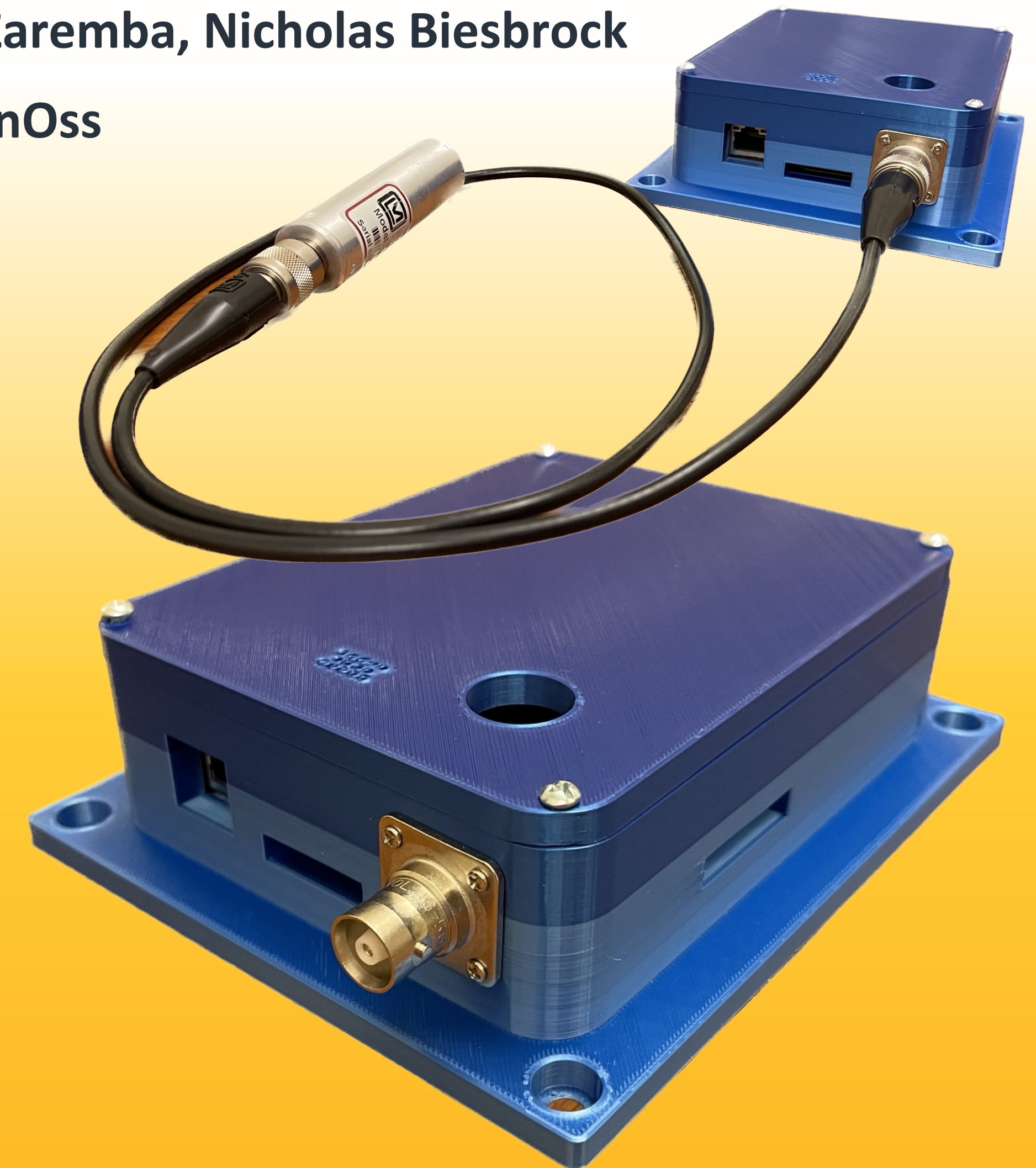
Elements

This project used four main components to accomplish the end goal. Electrical Hardware, Embedded Software, Deployable API, and the Enclosure. This enveloped the three main Engineering fields (Electrical, Computer, and Mechanical).



Construction

The PCB was reflowed with all components in place and functionally checked after initial construction was complete. The Enclosure was 3D printed using an Ender 3 V2 using PLA Filament.



Result

In result the system interfaces with a Geiger-Müller Tube to measure an effective dose of gamma radiation. That then uploads this data to a server running an API that can graphically display the data.