HASP 2013
UND-UNF Payload
Monthly Status Report for March 2013

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She joined recently. She will put more time after adjusting her job schedule.
One more student will be joined soon.

UND-UNF team did the following work during March 2013:

1) Our mission objective is to create a free flying payload that utilizes the technologies we have previously developed with HASP. Wade Snarr, Dr. Patel, and Ron Fevig have been making progress by working with Taylor University and Iowa State University. We will integrate our solid-state sensor into a high precision sensor module that will likely be flown this summer.

2) UND has maintained our weekly Friday meetings. We have also included Dr. Naima Kaabouch, an electrical engineering professor at UND, this month.

3) UND has been in contact with Connie Ciarleglio from UMD regarding an RF radio ground station. A request has been made to use UMD's ground station from the 2012 flight as it is proven to work and has been approved by Dr. Guzik and CSBF personnel. UND is waiting for the request to be approved or rejected. If rejected, UND will retain Connie Ciarleglio's aid in a ground station design and approval process.

4) UND has uncovered the altitude limitation issue with the embedded GPS receiver in the 2011 and 2012 payloads. By configuring the GPS receiver module in 1 of 3 aviation modes, altitude string readings are guaranteed by U-Blox to remain present up to 164,000 ft. Thus, UND has chosen to remain with the same GPS receiver as in prior flights.

5) UND has begun the initial printed wiring board (PWB) design. This design is similar to the 2012 UND payload PWB design with the exception of an added radio transmitter and supporting components.

6) UNF team has modified the design of printed circuit board to interface eight sensors array. The new fabricated PCB has more features than that of used for the HASP2012 flight. The new PCB can accommodate 8 sensors, one heater, one temperature sensor and one fan. The front (gas input side) and back (electrode side) side of PCB are shown in fig.1.

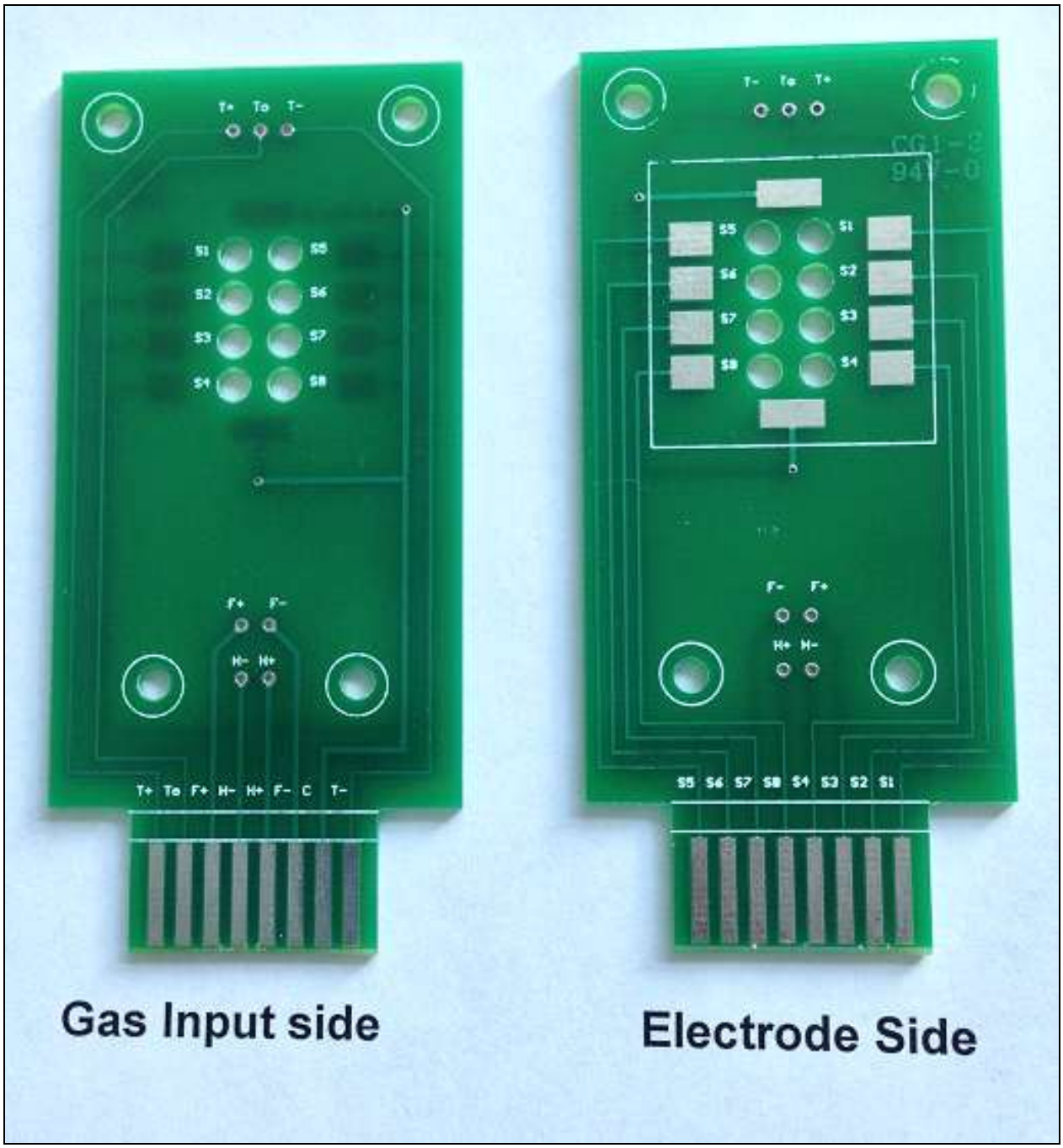

Fig.1 Front and back side of new PCB.

The label and pins information of PCB and connection of PCB with 16 pin card edge connector are listed in fig.2 and table-1

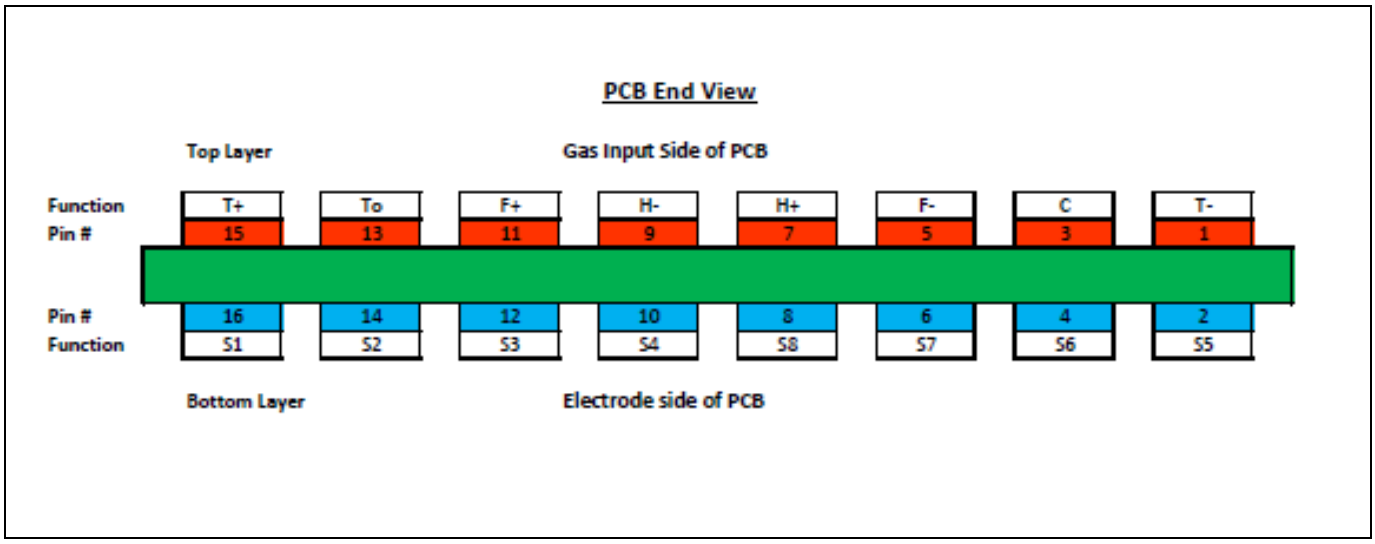

Fig.2 Pins information of PCB

Mapping and Function Cross Reference

PCB Ref. #	Connector Ref. #	Function	PCB Label *	PCB Layer
1	1	Temp Sensor Gnd	T-	Top
2	2	Gas Sensor 5	S5	Bottom
3	3	Common	C	Top
4	4	Gas Sensor 6	S6	Bottom
5	5	Fan-	F-	Top
6	6	Gas Sensor 7	S7	Bottom
7	7	Heater+	H+	Top
8	8	Gas Sensor 8	S8	Bottom
9	9	Heater-	H-	Top
10	10	Gas Sensor 4	S4	Bottom
11	11	Fan+	F+	Top
12	12	Gas Sensor 3	S3	Bottom
13	13	Temp Sensor Vout	To	Top
14	14	Gas Sensor 2	S2	Bottom
15	15	Temp Sensor Vs+	T+	Top
16	16	Gas Sensor 1	S1	Bottom

Table-1 PCB and card edge connector information

Fig.3 shows the picture of eight sensors array mounted on new PCB.

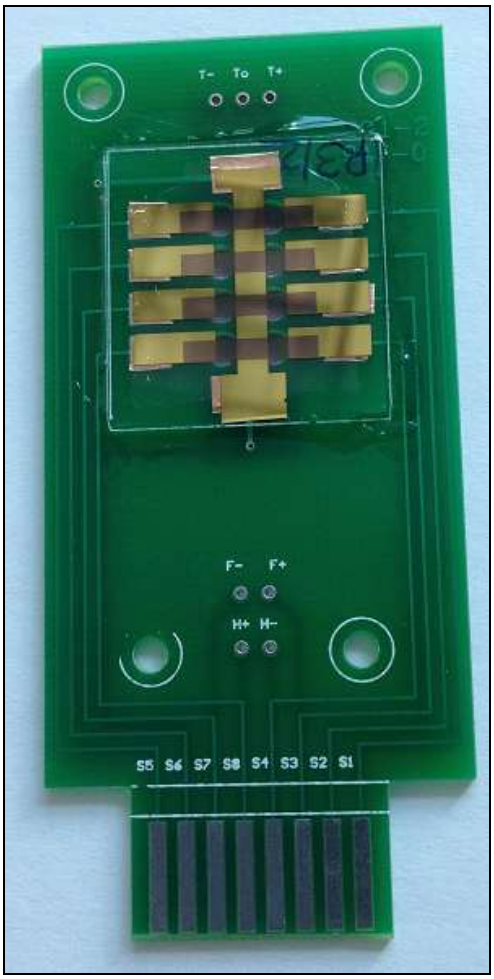

Fig.3 Sensors array mounted on the PCB.

Testing and calibration of sensors with ozone gas is going on. One of sensor array will be delivered to Dr. Guzik and his group for their balloon project by end of this week.