HPRT MEETING MINUTES

Staff Meeting

Honeywell Pressure Regulator Team (HPRT)

Friday, 26 January 2018
10:00 - 10:45 AM

Minutes recorded by: Myla Azofeifa

Meeting called by: Haley Flenner

Attendees: Jordan Loos, William McGinn, Alex Rustaey, Yi Tong Zhang, Dave Tornquist

Table 1 - Record of Meeting

6:30pm	**Begin Meeting** ● Meeting called to order by initiation of Skype call ● Topics: ○ Honeywell Skype Call ○ Action Item Updates	EGR 323
	Prototype Updates with Haley and Dave ● Picking up where we left off in December ● Turboexpander ○ Needs bigger motor (current motor is not collecting enough energy) ○ Smaller area ○ Redesign turbine blade ○ Changing the layout of the system ● Bellow valve ○ In the process of fleshing out details ○ Should have a printed prototype by next week (Thanks Bill!) ○ Working on mathematical modeling of the area closure	EGR 323
	General Notes ● Look into how pneumatic drill work → high pressure air, releasing into ATM, but trying to harness as much pressure as possible ● Guided rotor compressor ● Talk to car enthusiasts to see what they know about turbochargers and to see if we can apply that information	EGR 323

	to redesign the pressure regulator system	
	Action Items Updates - Staff Meeting ● Yi Tong - nondimensionalization of turboexpander ○ Flow rate - 0.3 lb/min ○ Constant outlet pressure ○ Need to drop pressure from 100 to 25psi ○ We want a ΔP of 75 psi $\rightarrow$ 10800 psf ○ Find books on turbines, or turbine vendors ● Alex ○ Having some difficulty; not just guess and checking for turbine blade design ○ Have been looking at Francis turbines, but these are water based ○ Will look into pneumatic drills ● Myla ○ Have done some research on motors -- need to flesh out details with Alex regarding turbine size, speed, and system layout ○ Will have specific part numbers for next week ● Bill ○ Soft PLA printing -- printed a sample, and figured out that the material needs to print at 1/5th speed ○ Is currently in the process of printing out a proof of concept of the bellows valve ● Jordan ○ Reached out to some math dept. Individuals to try to get some info regarding the mathematical modeling of the area closure for the bellows	EGR 323

Table 2 - Action Items (Tasks Assigned)

Tasks	**Person Assigned**	**Due Date**	**Date Complete**
Send Haley & Dave CAD package and sketches of the geometric modeling of the bellows valve area enclosure.	All	ASAP	
Update semester schedule and send to Haley & Dave.	All	ASAP	
Design a few turbine concepts. How does a pneumatic drill work/what kind of motor	Alex Rustaey	02/02/2018	

does it use?			
Non-dimensionalize turboexpander system. Have some equations and have references for them. Talk to David Willy? Get the relationship between torque, speed, and pressure.	Yi Tong Zhang	02/02/2018	
Research potential motors for turboexpander. Motor part numbers. Show the process given the speed and power, given this generator.	Myla Azofeifa	02/02/2018	
Have bellow valve printed. Look into tesla turbines.	Bill McGinn	02/02/2018	
Determine geometric model for the area enclosure. Talk to the math department; coordinate with Honeywell.	Jordan Loos	02/02/2018	
Complete shop safety training. Must be done on a weekday at 9:30am. Contact Kellan Rothfus for more information.	*Jordan Loos* *Bill McGinn* *Alex Rustaey* *Yi Tong Zhang*	*Spring 2018*	*Alex - 10/24/2017*

Next formal meeting: Friday, 2 February 2018, EGR 323, 10:00AM