

Continuous Monitoring of Asthma Control Progress Report 7

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Date: Friday, March 3rd - Thursday, March 9th

Problem Statement

Asthma patients often do not experience the the symptoms of asthma exacerbations, such as coughing, wheezing, and increased respiratory rate, for up to 2 days after it has begun. In severe asthma patients, where the exacerbations are more frequent, prolonged detection can lead to more serious symptoms, longer recovery times, and extended tissues destruction. These severe asthma patients only account for 10% of all asthmatics, but they account for a disproportionate amount of health-care costs, hospital admissions, doctor visits, and emergency services. By creating a device that can detect the symptoms of an asthma exacerbation earlier, the patients could be notified to start their asthma action plan (AAP) sooner. This could potentially save significant amounts of time, money and resources while reducing the effects of the exacerbation.

Restatement of Previous Team Goals

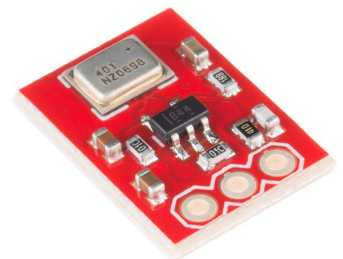
- Get cost estimate for printing microphone casing
- Print microphone casings
- Come up with a plan for testing on asthma patients
- Complete HIPAA training (once given access)
- Begin fabrication of microphone system
- Order cable and shirt

Summary of Team Role Accomplishments

- Luke (BSAC) - Attended biweekly BSAC meeting
- Tim (Leader/ Communicator)- Worked on/ submitted the progress report.
- Kelsey (BWIG/ BPAG)- Fixed SolidWorks design. Sent Dr. Puccinelli SolidWorks design to 3D print. Uploaded progress report to website. Ordered shielded cable.

Summary of Design Accomplishments

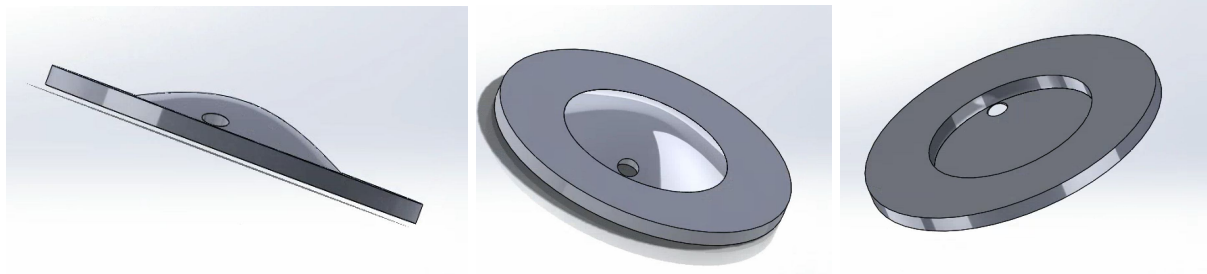
The team decided on an encased microphone design. First, it will feature a 3D printed casing in order to make the design slimmer/more ergonomic. In addition, the microphone be completely enclose in the new casing. The reduced bulk will increase patient comfort and enable the device to be more easily integrated into a shirt. The team will use the same microphone as last semester: Sparkfun MEMS Microphone Breakout- INMP401



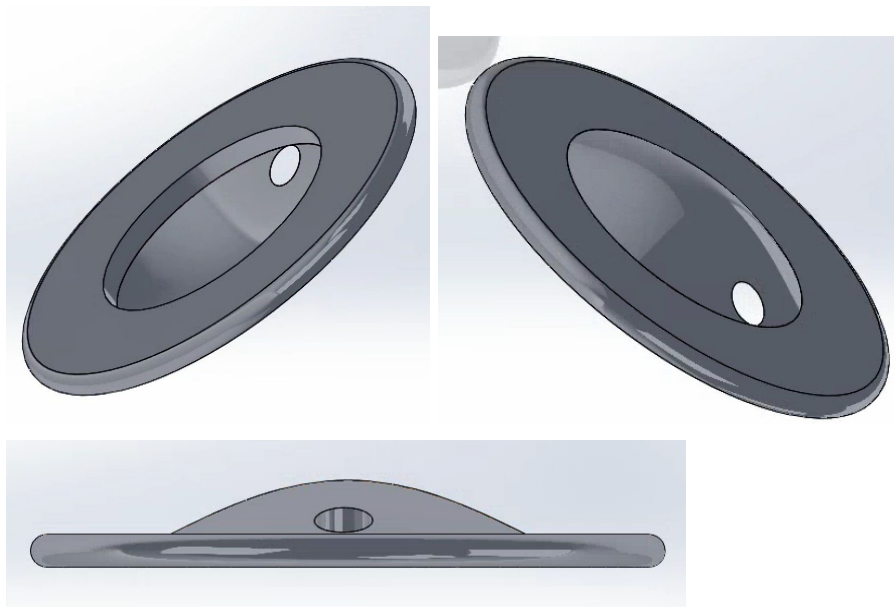
(ADMP401). The idea behind this is that we know that microphone has worked well and it should be compatible with our code written last semester.

Our team measured the previous semesters microphone design to get a better idea of the size we should make our design. With these measurements, solidworks designs were created.

Old solidworks images:



New solidworks images:



No new design changes have been made in the past week. The team has submitted the designs for approval and printing and has ordered the necessary cable. The team decided to go with a two conductor shielded with a drain wire, similar to last semester. The cable is the Digi-Key C2534-50-ND and can be found at

<http://www.digikey.com/products/en/cables-wires/multiple-conductor-cables/473?k=2+conductor+shielded+cable&k=&pkeyword=2+conductor+shielded+cable&pv316=10&FV=ffe001d9&mnonly=0&newproducts=0&ColumnSort=0&page=1&quantity=0&ptm=0&fid=0&pageSize=25>



Preliminary Presentation					X											
Preliminary Report/Notebooks					X											
Final Presentation																
Final Report/Notebook/Evals																
Team Goals																
Select 3 final design ideas				X												
Design Matrix				X												
Presentation Powerpoint					X											
Decide on final design						X										
Presentation poster																
Meetings																
Team	X		X	X	X	X										
Advisor	X	X	X	X	X	X	X									
Client	X					X										
Website																
Update info	X	X	X	X	X	X	X									

Expenses

Date	Item	Cost
3/8/16	Digi-Key 2 conductor Shielded Cables with drain wire (W120-50-ND)	\$25.62