**BreatheEasy PAS**

Development Phase Plan

Given the complexity of the BreatheEasy Portable Air Sensor, we estimated that the project would take approximately 110 days to complete, with a total cost of $980,280. Development was broken down into two parallel units: development of the Android app, and the development of the sensor device. Development of the app was estimated to cost $980,280 over 110 days, and development of the sensor device was estimated to cost $194,880 over 65 days. Finally, composite testing of the sensor and app was estimated to cost $117,500 over 18 days. The total cost of the project was estimated at $1,097,880 over 128 days.

Though the app development is estimated to take 110 days to complete, much of the time spent on defining the problem and coming up with possible solutions fell under this track. With the completion of the app requirements and SRS, the app will need to go through implementation and test phases.

Implementation is estimated to take 22 days and will include tasks such as: determining what platform to develop on, conceptualizing and laying out the individual modules that need to go into the app, and finally coding the app.

Because the BreathEasy app will be used in situations that can be life or death, making sure the app is bug and error free is extremely important. As a result, a significant amount of time – 53 days – has been dedicated to testing. We have identified the need for two different kinds of testing: ‘automated’ testing, which will include unit testing and debugging of the app; and ‘usability’ testing, which will look at how actual users use the app and device.

Usability testing is especially important, as we want to make sure the user get the best possible experience from BreathEasy PAS. In this step, we will put the app in target user’s hands and observe how they use it. We will ask questions about what they thought worked and what didn’t, making sure to take careful note of any and all suggestions.

Once we have sufficient data from the test users, we will go back and make any necessary changes to the app. Automated testing will make sure that all calculations and other quantifiable features remain consistent and correct as the app is in development, and as later changes are being made.

The sensor development track is similar to the app track: design, production, and testing. Once an implementation has been decided upon(after the completion of the SRS), the design of the firmware will begin, and is expected to take 25 days to complete.

At the same time as the design of firmware, the various hardware components needed for the device will be sourced and a hardware development team will be formed.

Once the firmware design is complete and the components have been received, assembly and programming of the device will begin. Unit tests will be completed with as each module is finished. However, once the initial device has been completed, it will go through a round of testing to determine if there are any bugs remaining in the code.

Once all development and testing is completed, all release documentation, user manuals, and troubleshooting guides will be written.

When both the sensor device and Android app are completed, the system will go through two rounds of composite testing (both automated regression testing and user testing), in order to find and eliminate any remaining issues.