Abstract Submitted
for the OSS17 Meeting of
The American Physical Society

Strengthening life-science students' relationship with physics through prototyping biomedical devices[1] ABHILASH NAIR, ISAAC RECORD, VASHTI SAWTELLE, Michigan State University — We present reflections from a project, situated in an introductory physics course, that is designed to appeal to and engage life-science majors in designing and prototyping a spirometer. A spirometer is a common biomedical device that is used to evaluate the health of pulmonary functions. This device brings with it a troubled racial past and this project presents an opportunity to unpack the ethical and social implications of designing a device to collect data from human beings. Physics education research studies have repeatedly shown that experiences in a physics classroom can result in students finding physics to be less connected to the real-world. We argue that the introductory physics classroom has the potential to engage students in exploring complex interdisciplinary applications that may be relevant to their future careers, and we present this project as a way to positively impact life-science students' relationship with physics. Many life-science students in the physics classroom have an interest in health professions, this activity builds on that interest by providing students an opportunity to interface with biomedical technology. We discuss how these opportunities can potentially influence how students perceive physics, mediate their interest in engaging in physics activities, and positively impact students' sense of pride and self-efficacy.

[1]This work was supported by a grant from Science and Society @ State (S3) at Michigan State University.

Abhilash Nair
Michigan State University

Date submitted: 10 Apr 2017 Electronic form version 1.4