SANTA CLARA UNIVERSITY
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DEPARTMENT OF MECHANICAL ENGINEERING
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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

Maxwell Abrams
Cynthia Le

ENTITLED

3D Bioprinter

BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREES OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING
BACHELOR OF SCIENCE IN BIOENGINEERING

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3D Bioprinter

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Submitted in partial fulfillment of the requirements
for the degrees of
Bachelor of Science in Computer Science and Engineering
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Bioengineering
School of Engineering
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November 20, 2016

3D Bioprinter

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ABSTRACT

The 3D bioprinting project aims to create a 3D bioprinter that can improve the capabilities of high school teachers to engage students in STEM education. In order to accomplish this goal, the team is working to expand functionality in SE3Ds product line to allow for a better student and teacher user experience and the execution of more interesting experiments. The 3D Bioprinting projects main goal is to create a modular incubating box with a variety of sensors to allow for custom environments per experiment, a clear interface to control the settings, and an automatic image capture system. As the project increases functionality, it also will keep the final deliverable as low cost as possible. These additions to the current SE3D 3D Bioprinter will increase effectiveness in the classroom and allow the target audience, high-school students, to better engage in STEM education activities.

Keywords: 3D Printing, Bioprinting, STEM, Education, Control Systems, Incubation

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