Dear Hiring Manager,

I always believed that only innovation can lead to a better tomorrow and innovation lie in robust circuitry and smart hardware software co-design. This was the major motivation for me to pursue Electronics and Communication Engineering. The need for developing smarter systems, which could provide a better functionality to support intrigues me the most.

My research on smart grids and WSN in my undergraduate studies motivated me to dive deep and pursue a project to encourage the use of clean energy. Initially, I made a torch which worked using a thermoelectric generator (TEG) only, a transducer that converts heat into electrical energy. After experimenting and thoroughly studying the results I inferred that only TEG will not produce enough energy to run the torch. After further experimentation, I came across the use of piezoelectric material, another transducer which converts pressure to electrical energy. Results obtained from the experimentation consolidated my decision. I registered for a provisional patent with Patent Office, India for this.

My major area of interest has been embedded systems, IoT and designing. After my undergraduate studies, I worked as a firmware engineer in Eigen Technologies. I was responsible for integration of various sensor hardware and software with the microcontroller (JN516x). These sensor nodes were used for remote transmission of data via wireless channel. In this process, I gained thorough practical knowledge of hardware as well as software aspects of timers (tic and other), UART ,IEEE 802.15.4, coordinator and PAN coordinator units, convertors and sensors including heat, temperature pressure, soil, humidity, GPS, CO_2, CO. I was also involved in providing solutions to customer related to the system. This system is used in the industry as well as the education sector for research in IoT and wireless networks.

My keen interest and the desire to delve deep in this field, prompted me to pursue my master's degree from Cornell University. My M.Eng project is the Disinfectant UV Roomba. This is an autonomous system designed to eliminate 'human' disinfection in hospitals. It consists of a Roomba, with a PiTFT, robotic arm and a special UV disinfection LED. The Roomba goes around the room and the arm raises to disinfect(via LED) whenever it is under a table (performs a lawn mowing algorithm) or for a few high touch surfaces such as keyboard. This system proves to be revolutionary in times of virus outbreaks such as coronavirus.
I also designed a Braille Translator. The braille translator which eliminates the use of special books for blind people. It uses OCR, OpenCV, raspberry pi 3 and pi camera to read a given text and translate it into the Braille language on a special hardware we created. The blind person can read the text by putting his finger on the hardware box which uses motors (PWM) to make protruding (dynamically).

I aspire to bring a change in the lives of people by creating intelligent solutions. I firmly believe that New York State Clean Energy Internship Program will be ideal for me to realize my dreams. It will equip me with extensive knowledge of embedded systems, controls and design and in-depth exposure to all aspects of integration.

All this will help me in achieving my ambition to improve the lifestyle of billions with automated solutions.