Keyur J. Rana

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EDUCATION

Rutgers University School of Engineering — New Brunswick, NJ
Bachelor of Science in Electrical Engineering — Expected Graduation: May 2024
Cumulative GPA: 3.564
Honors: Dean's list - 3 Semesters

EXPERIENCE

NASA HUNCH Design and Prototype National Finalist

Lunar Flag Pole (Fall 2019–Spring 2020)

- Researched, modeled, and configured a collapsible Lunar flagpole to withstand the harsh environment of space, the Moon, and the lunar ascent engine exhaust
- Devised a potential fix to minimize the effort of setting up the flagpole by integrating a drill motor with a custom built 1-helix Auger drill bit
- Incorporated the electrical and power system for the motor, which allows an assembly and setup of 30 seconds resulting in minimized labor required by Astronauts

Collapsible Sleeping Quarters (Fall 2018–Spring 2019)

- Managed and coordinated with a 20-member team, presented progress and ideas regularly to the Project Manager
- Designed and developed a prototype from scratch of the collapsible sleeping quarters for the International Space Station with a budget of $150
- Took the initiative in building a control panel for monitoring ventilation, CO/CO2 readings, and crew health
- Achieved favorable recognition by applying automation to a design presumed to be manual

SKILLS

Software

- C++, HTML, CSS, JAVA, MATLAB, ROBOTC, Multisim
- Certified Autodesk Inventor User, CAD

Hardware

- Circuit design, CNC milling, power supply, oscilloscope, function generator, and multimeter
- Competent proficiency in implementing with VEX, TETRIX, and Microcontrollers

PROJECT EXPERIENCE

Automated Guided Vehicle (AGV)

- Formulated and instituted an AGV that follows a line path carrying cubes to simulate inbound and outbound handling for replenishment and for picking
- Conceptualized and programmed the Cortex Microcontroller in standard C using the ROBOTC program

Marble Sorter

- Engineered and constructed a robot that sorts 20 marbles with different properties and appearances using VEX Robotics
- Gained hands-on experience with VEX robotics and refined programming skills using ROBOTC

LEADERSHIP EXPERIENCE

Formula Racing - Rutgers

(Fall 2021–Current)

Electric Powertrain

- Research ways to monitor and identify faulty voltages of individual battery cells from a large Li-ion battery pack
- Design vehicle's low-voltage and high-voltage systems from 12V to 400V
- Communicate and collaborate with sub-teams to run tests and discover potential malfunctions
- Fundraised over $22,000 through football concession stands

Engineering Club

SeaPerch (2016–2018 & 2019–2020)

- Led and collaborated with a 6-member team to solder and assemble the controller and remotely operated underwater vehicle
- Gained experience in understanding the behavior of vehicles underwater and overcoming obstacles
- Competed and placed 3rd for presentation in the Northern New Jersey SeaPerch Regional competition

SkillsUSA

Urban Search and Rescue (Fall 2018–Spring 2020)

- Designed and assembled the Mobile Robot for simulated Explosive Ordnance Disposal using TETRIX components
- Coordinated and instructed crucial instructions for the navigator controlling the robot through the obstacle course
- Competed and placed 3rd in the 2019 Urban Search & Rescue Regional Competition