ROBOTICS: URBAN SEARCH & RESCUE
(Virtual)

Contest Description

To evaluate team members' skills and preparation for employment in fields related to and including robotics, engineering, automation, manufacturing, electronics, and emergency services. To recognize outstanding performance by participants in scenarios that require problem solving and teamwork in a real-world situation.

Eligibility: Open to a team of 2 active SkillsUSA members who are enrolled in programs with Robotics, Engineering, Automation, Manufacturing, Electronics, and Emergency Services as occupational objectives. Students will submit a 5-7 minute demonstration video and engineering notebook in lieu of an in-person contest.

Regional Competition

This contest will consist of the following:

1. Submission of students digital Engineering Notebook (See 2020 Robotics: Urban Search and Rescue Challenge)
2. Creation of an autonomous program for the skills challenge based on the robot designed in the digital Engineering Notebook. Students can choose two locations on the field where the ordnances are located and will write an autonomous program to complete the challenge. Students should include a diagram of where the ordnances are placed on the field and screenshots of the program that will retrieve them.
3. Submission of a 5-7 minute video of the student presenting their engineering design process.

The Engineering Notebook and autonomous program will be designed and based off of the SkillsUSA 2020 Robotics: Urban Search and Rescue Challenge.

Students must submit their demonstration video and Engineering Notebook to SkillsUSA California by January 30, 2021 (details to follow).

Engineering Notebook

- The engineering notebook is a tool for students to document their designs prior to the competition. It can include pictures, sketches, printed out sections of code or screenshots of code, detailed assembly instructions, etc.
- Must be neat and easy to read
- Engineering Notebook should be submitted in PDF form and not exceed 40 pages.
- Explanations noting how testing was conducted, why modifications were made, skills learned, and how robot might further be modified to improve performance and achieve desired objectives if no restrictions were in place
- Include code of strategy to complete the SkillsUSA Robotics: Urban Search and Rescue challenge.

Demonstration Video

The submission of a 5-7 min. video in lieu of the in-person demonstration will be required for this contest. Contestants are expected to:

- Demonstrate the knowledge of various visual aids used to present technical information
- Present technical material in a professional manner
- Define team roles and responsibilities
- Demonstrate ability to solve problems as a team in a given time frame
- Demonstrate and document a comprehensive plan to solve an engineering problem

Student Materials List

1. All competitors must create a one-page resume and submit an electronic copy to SkillsUSA California. Failure to do so will result in a 10-point penalty
2. A laptop with licensed VEX programming software (for the Cortex microcontroller or V5 system) and presentation software.
3. Chromebooks can be used in lieu of a laptop with VEXcode V5 chrome extension added and google slides can be used as a presenting software
4. Graph paper, pens, pencils, tape, markers and scissors

Note: Technical drawing/blueprint of robot drive chassis must be included in notebook

Clothing Requirements

Official Dress is NOT required for Regionals. Clothing must be unbranded with no words, images, or logos. SkillsUSA or SkillsUSA California attire is recommended.

Note: Check the Contest Guidelines and/or the updates page on the SkillsUSA and SkillsUSA California website:

- **www.skillsusa.org/compete/updates.shtml**

- **https://www.skillsusa.org/competitions/skillsusa-championships/contest-descriptions/**
- **https://www.skillsusaca.org/competitive-events-2**

All SkillsUSA California contest projects are subject to change due to any unforeseen facility, staffing or site-related issues. Please use these materials as a reference to prepare students for the potential contest project. SkillsUSA California regional and state contest projects are developed by state technical committee members to align with the national technical standards.