**Von Karman Challenge - NGC TEAMS**

SCORING RUBRIC:

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **Description** | **Max. Points** | **Points Earned** |
| Requirements | Robot satisfies dimension requirements (\_\_\_ x \_\_\_\_ x \_\_\_\_\_\_) | 10 |  |
| Progress reports were submitted bi-weekly (7 total)(2 pts. Each plus 1 bonus pt for all submitted) | 15 |  |
| **Subtotal:** | | /25 |
| Presentation & Aesthetics | The robot design is artistic / unique / creative / has character. | 20 |  |
| **Subtotal:** | | /20 |
| Functionality | The robot scanned all visible QR codes (1 pt. for each visible QR code scanned) | 5 |  |
| The robot scanned all visible QR codes in order | 5 |  |
| The robot scanned the IR QR code | 5 |  |
| The robot scanned the QR code on the dark wall | 5 |  |
| The robot found the splint | 5 |  |
| The robot picked up the splint | 5 |  |
| The robot returned the splint to the astronaut   * 5 pts. for returning splint to astronaut without dropping it **after the robot commenced motion** * 3 pts. for returning the splint to the astronaut after dropping it once or twice **after the robot commenced motion** * 1 pt. for reporting to the astronaut that the splint was dropped | 5 |  |
| The robot identified the steel patch | 5 |  |
| The robot picked up the steel patch | 5 |  |
| The robot returned the steel patch to the astronaut   * 5 pts. for returning steel patch to astronaut without dropping it **after the robot commenced motion** * 3 pts. for returning the steel patch to the astronaut after dropping it once or twice **after the robot commenced motion** * 1 pt. for reporting to the astronaut that the steel patch was dropped | 5 |  |
| Autonomous navigation was incorporated into the robot (20 pts. for full autonomous navigation) | 20 |  |
| The robot picked up soil and delivered it to the astronaut. | TBD |  |
| Programmed actions were incorporated into the robot (Up to 30 pts. if all actions are autonomous) | 30 |  |
| **Bonus:** Up to 10 bonus points may be allotted for exceptional robot design | 10 |  |
| **Subtotal:** | | /100 |
| **Category** | **Description** | **Max. Points** | **Points Earned** |
| Innovativeness | The robot found or identified and scanned QR codes in a novel way | 10 |  |
| The robot found or identified the splint and/or steel patch in a novel way | 10 |  |
| The robot picked up the stick and/or steel in a novel way | 10 |  |
| **Bonus:** Up to 10 bonus points may be allotted for ‘wow factor’ | 10 |  |
| **Subtotal:** | | /30 |
| Bonus Capabilities | The robot transmitted an accurate map of the QR codes to home base | 5 |  |
| A working solar cell was incorporated into the robot | 5 |  |
| **Subtotal:** | | /0 |
| **TOTAL:** | | | /175 |

RULES & REMINDERS:

* Teams can consist of up to 5 people.
* The team must start with the kit provided. At the end of the competition, the robot will be returned to and become the property of the administrators with all attachments, parts, etc.
  + The robot must be built with the parts provided. Additional parts may be added, but they become part of the robot that must be returned at the end of the competition.
  + The robot must fit within the dimensions --- x --- x--- in the stowed position. Arm, solar cells, etc. can stretch outside that dimension when deployed
  + The robot will have 10 minutes to run the course.
    - Scan the QR codes in order.
    - Find the splint and pick it up.
    - Evaluate the metals and pick up the steel patch.
    - Return the splint and steel patch to the astronaut.
* Progress reports are due biweekly.
* All NGC policies must be followed. \*\*Bring your child to work day rules\*\*
* Teams may not use any items considered dangerous including, but not limited to, flammable items, knives, and harmful chemicals. Ask if you have questions regarding this.

Any disregard for the rules will cause a team to be disqualified. Professional behavior is expected and encouraged.