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THE NASA MUREP AEROSPACE ACADEMY PROGRAM (MAA): PLAYING A PIVOTAL ROLE IN BRIDGING THE KNOWLEDGE-GAP DURING THE COVID-19 PANDEMIC

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The COVID-19 pandemic forced all City University of New York CUNY campuses, including York College, to offer virtual learning opportunities to students. NASA MAA, being an outreach STEM program, also fell under the same category and swiftly came-up with a plan to move into DLM. Initial surveys indicated the basic household technology needed to attend virtual sessions and showed complicated situations where parents had multiple children attending the summer 2020 session. To ensure greater participation, computers, iPads, Chromebooks, and cell phones were used. Common platforms, like WebEx and Zoom, were routinely used by our MAA teachers to disseminate online content delivery.

NASA MAA not only enables students to gain confidence in STEM-related concepts and applications, it creates a positive environment that promotes effective group dynamics, where social skills continue to flourish among the students. Thus, a team-building culture starts right from the beginning of the program – a powerful attribute where students feel comfortable to act, cooperate, respect, and successfully accomplish exercises. It is a gratifying situation, and MAA students and parents sincerely acknowledge such a unique education goal following the NASA Education Mission Directorate. Additional corporate support from AT&T and ConEdison allows the NASA MUREP Program to engage high school students in research activities.

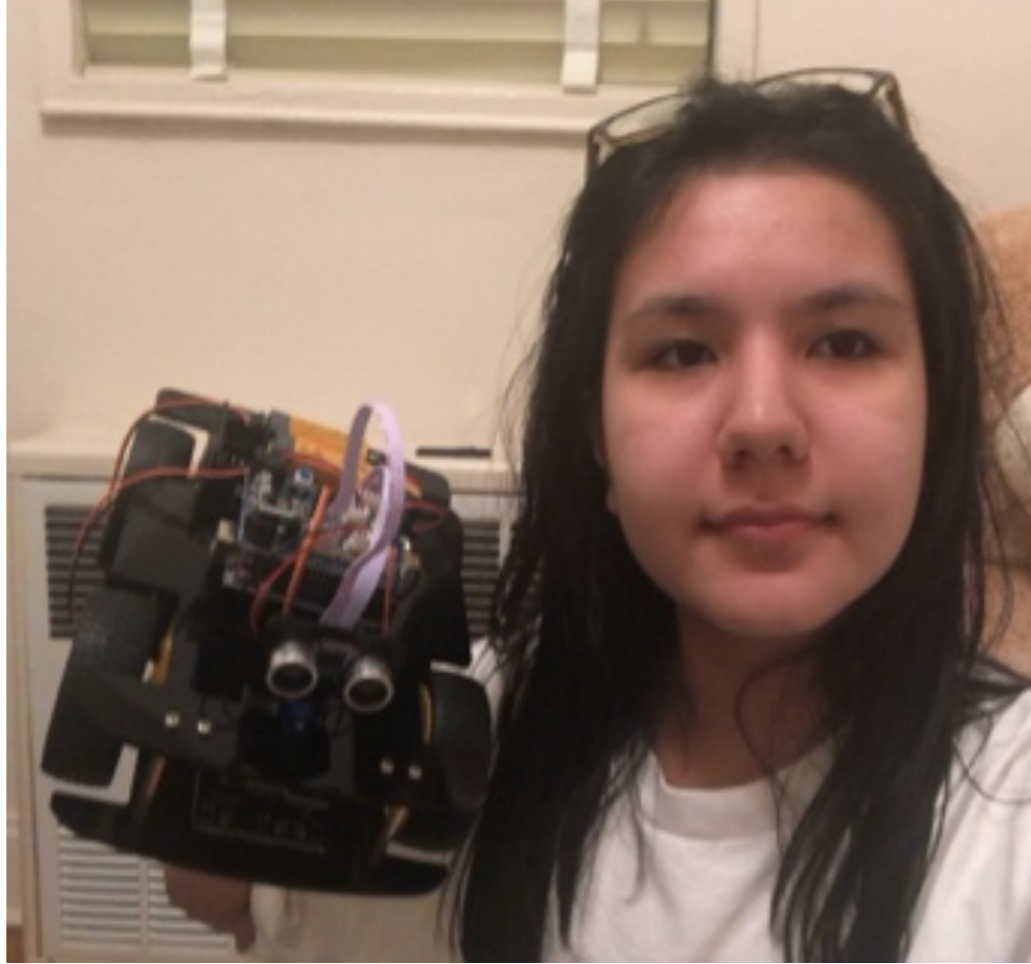


Figure 4: High School student showing her robot



Figure 5: High School student created an obstacle course for their robot

To face the “New Normal” like many of us, MAA staff diligently searched for best practices pertaining to the online delivery of STEM contents to the students through established sources such as NASA, American Museum of Natural History, NASA Educators Online Network (NEON), and JPL (Jet Propulsion Laboratory). Carefully crafted grade-specific lessons and activities on earth’s material properties, rocketry, coding (python, raspberry, kahoot), programming, electric circuit building, flight simulation, GPS-supported weather tracking, stargazing, EV3 Mindstorm Lego and robotics, and Martian habitat – suitable in home-based settings – were introduced to the students. With the help of the Family Focus Group (FFG), the traditional classroom environment was brought back to individual homes, where both parents and students collaborated together, sought answers, and completed assignments concerning STEM lessons. Many younger students, particularly in elementary grades, were very excited to see their friends online and exchanging greetings via chat box.

Program Highlights

The program being free is one of its greatest assets, particular for families from low-income communities who would otherwise not be able to afford such quality STEM program.

York’s NASA MAA has become a robust ecosystem that continues to fuel itself, cultivating the interest, participation, and persistence required to broaden STEM participation to become more inclusive of historically under-served, underrepresented youth and communities (comments from the external evaluator).

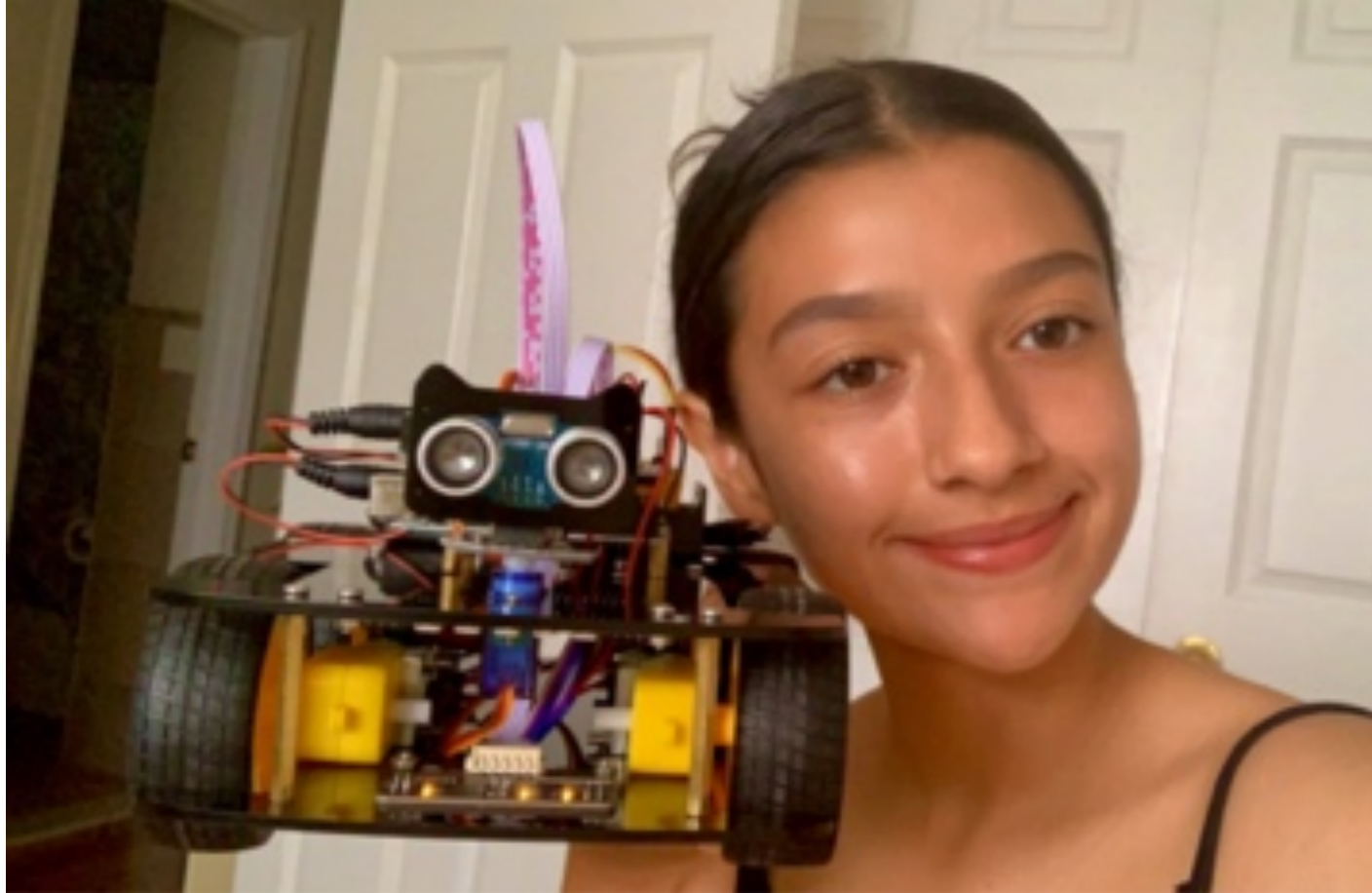


Figure 1: High School student with robot



Figure 2: High School student building robot



Figure 3: Robots provided to high school students



Figure 8: High School student working on robot

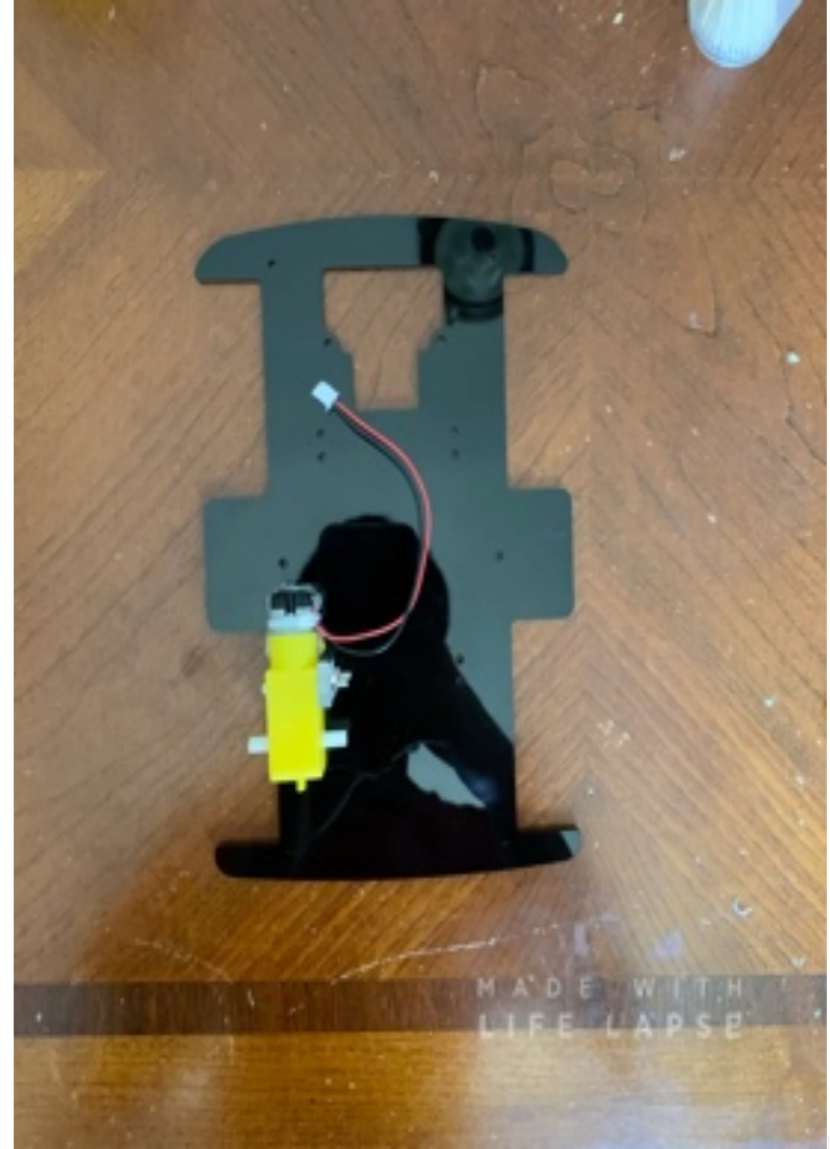


Figure 6: High School student starting to build their robot



Figure 7: High School student testing his robot

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