Environmental Learning and Research Technology

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As robotics and computer software advance, robotics have the potential to replace hazardous tasks. Utilizing computer hardware and software, we designed and engineered a tracked robot platform specifically for environmental research and mining operations. Going by the acronym E.L.A.R.T (Environmental Learning and Research Technology), it's not solely a robot but a framework that has been made open source to the entire scientific community. The main objective was to produce a rigid and solid robot that could withstand the outdoors while still collecting valuable information. Its use extends across a spectrum of institutions and experts seeking real-time environmental data, like liquid samples, gas concentrations, and solid samples. The targeted user base includes researchers, geologists, risk assessment teams, and scientists. The framework integrates an innovative algorithm that we have designed known as ETLU (Environment Threat Level Unit). This algorithm enables us to collect and compile sensor data, returning a final unit that determines the health risk posed to humans in any given environment. The sensor data collected is then accessible through a well-designed user interface that allows users to control the robot. E.L.A.R.T is equipped with easy-to-use action buttons and a live video feed for out-of-sight maneuverability. Other great features like global data logging and navigation lights can be very beneficial to researchers and scientists. The codebase has been licensed under the "GNU General Public License v2.0." This allows users the freedom to use, study, share, and modify our code, further achieving the mission of making a valuable contribution to the scientific community.

Awards Won: