

University of Puerto Rico in Humacao (UPRH)

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Nano fabric in Puerto Rico

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Nanotechnology is the branch of technology that deals with dimensions and tolerances of less than 100 nanometers, especially the manipulation of individual atoms and molecules. Nanotechnology can be applied to medicine, electronics, food, fuel etc. We will be focusing on Nanotechnology being used on fabric. This technology opens doors for new improvements to our fabric to make them more suited for a given situation for example: nanotechnology can make composite fabric allowing weight, thickness or stiffness to be manipulated. A current problem we can solve by using this is fixing and improving the uniform of Puerto Rico's rangers in el Yunque national forest.

Since Nano fabric can prove to be incredibly useful, we will be focusing on the environmental protection aspect of this technology. Research will be done with current developments in this field. Also, Nano fabric will be showcased in how exactly it works and how it could be implemented. It is important to do so, to show the benefits Nano fabric brings to us. Our research shall be conducted in different areas and environments, to test its functions, eliminate flaws and improve design. Some of those areas include El Yunque National rainforest in Puerto Rico and other places or environments that match the forest. In these areas we can find a lizard called the anole, which will be at the center of our research. These lizards are tough, and can adapt to changes in climate fast be it a rise in temperature or a drop. They remain effective in whichever environment they are in. We shall also use the leaves of plantain trees. The leaves took our interest because they seem to be waterproof and stronger than other types of leaves. Recreating this on nano fabric via biomimicry would help not only us, but plenty of others who have similar ideas.

Nano fabric is being studied and researched by a group of two people: Jose M. Roman Delgado and Glen A. Ortiz Figueroa. We have divided our work according to availability, time management, and efficiency. Jose shall handle general research, development, and investigations, while Glen will do design, data analysis and quality control. We decided on this based on each participants best skills and work habits. This way the work is divided equally and fairly, so that time will be managed proficiently and the overall outcome will be successful.

This project could help improve the safety and well-being of the rangers in their work place, as situations may arise constantly. Danger may occur at any moment in time and they must be ready and equipped properly. It could also help with lowering the probability of any of them being a heat casualty and having heat strokes. Nano fabric can protect them from extreme heat and minor injuries such as scratches and scrapes that could get infected. Our research will solve problems that will make working in an environment such as el Yunque safer and the working personnel more effective.

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