**ELECTRONIC MOSQUITO (*Culicidae*) REPELLENT BRACELET**

Researcher: Kenny Walter C. Diolola

This experimental study produced an effective electronic bracelet that repels female breeding mosquitoes which bite humans. Mosquitoes are sensitive to waves of light and sound especially sounds in the ultrasonic range (Hickman, 1973) and according to Oween & Hopp (1994), insects like mosquitoes respond to ultrasound with higher bandwidth at 28-44 kHz, so the device was made to output a humming sound in this frequency range. Since the exact frequency that most mosquitoes respond is uncertain, the device is made to hop in the frequencies between the said range with an increment of 1kHz. The device uses a Micro-Controller Unit (MCU) specifically the PIC16F690 which is manufactured by the Microchip company, the algorithm which is responsible of producing such sound is programmed in this component of the device’s circuitry. The device is powered by a 3.7V, 300mAh Lithium Polymer rechargeable battery, and since the MCU is a nano-watt technology the device can operate for 12hrs and stand-by for 1 week. For the product to have a decent look of a fashionable bracelet, a 3D printed housing of the circuitry was made and fitted in a rubberized arm band. Results of the study determined that range of repulsion of the device is at a maximum range of 2.3 meters, therefore the user of the device has is mosquito free in a spherical space with a diameter of 4.6 meters. Also, there was a significant difference between the subjects who used the product and those who do not in terms of the number of mosquito bites (p-value = 0.00 < 0.05) which implies that the product is effective in repelling mosquitoes.