Essameter: A Noble Device for the Visually Impaired and the Deaf Learners for Measuring Length

Anyanzwa, Esther (School: Keriko Mixed Day Secondary School)
Njeri, Salome (School: Keriko Day Mixed Secondary School)

The purpose of this project is to help the visually impaired and deaf learners to measure the length of an object based on the angles subtended at the center of a revolving disc. The main principle applied was the formula of the length of an arc of a circle. A set of circular discs were designed and calibration in degrees was done on the outer disc. A thin string was fixed on the hook attached to the middle disc. An object whose length was to be measured was fitted along a straightened string. The string was then wound around the middle disc in order to cover the same length of the object. This was achieved by rotating the middle disc. The values of angles and numbers of revolutions made changed to indicate the length that was to be determined. The scale was also modified to accommodate the use of the same device by the blind /deaf. The length measured was directly proportional to the angle of rotation in the last revolution when the numbers of revolutions were kept constant. On the other hand, the length measured increased with the number of revolutions made when the angle of rotation in the last revolution was kept constant. The device was further modified in order to integrate Arduino technology with the main focus of attaching an LCD screen that will make it digitally display the measured values. This device is easy to assemble, user-friendly and reliable. The world is looking for the best ways of ensuring that the needs of all people including the physically challenged are addressed. We therefore recommend the use of this device in various institutions of learning including the schools for the blind/deaf.

Awards Won:

National Center Junior Academy of Sciences of Ukraine: UN Sustainable Development Goal Award $2000.000