



**USAID**  
FROM THE AMERICAN PEOPLE



## Science, Technology, Research and Innovation for Development (STRIDE)



### Wearable Evasion Device

**GRANTEE:** Samar State University (SSU)

**PRINCIPAL INVESTIGATOR:** Engr. Jon Alvin Macariola

**GRANT PERIOD:** February 1, 2017 to January 31, 2018

**CONTRACT AMOUNT:** Php 1,028,255 (approximately USD21,800)

#### Navigator for the blind

Mobility is a major challenge for blind people because of the difficulty of distinguishing the limits of the walking surface, recognizing hazards of the surrounding environment, and gathering other tangible information of their current location. The blind usually depend on their sense of hearing.

At times, the blind needs guidance from a sighted escort or use a walking cane to perform simple navigation activities.



*Prototype of the hand obstacle detection device version 2*

To ensure protection and the well-being of the visually impaired at all times, the project has developed a radical monitoring system for self-directed movement. SSU, with support from USAID STRIDE, is researching the development of a system that will assist the navigation of visually impaired people in indoor environments. The system permits the visually impaired a more convenient and enhanced way of navigating autonomously and independently, configured to determine hazards and obstacles that will lead to appropriate re-routing.

The objectives of the project are as follows:

- To develop low-cost hand and foot wearable evasion devices for the visually impaired;
- To fabricate a wearable evasion device with improved design and packaging through the reconstruction of microelectronics and microcircuits;
- To create, test, and modify the device's hardware and firmware to ensure precision and accuracy in detecting objects, obstructions, or hazards in the walking surface and surrounding environment; and
- To conduct tests runs and simulations that would aid in optimum functionality of the wearable evasion device.

Designing devices for the blind is quite challenging. However, the research team was inspired to assist and provide the visually impaired, a disadvantaged segment of society, an opportunity to achieve independence.

After the completion of the device, the research team will organize a series of Convention-Expos as an avenue for project launching, where the team can disseminate information to various groups and communities such as the business sector and entrepreneurs, local inventors' guilds, organizations for the visually impaired, and public and private sectors. This strategy is expected to heighten consciousness of the availability on the device for the visually impaired, and thereby secure support for possible commercialization.