FEATURES

USER-FRIENDLY

SAFE TO USE

COMFORTABLE

COST-EFFECTIVE

CONTACT

DOST-PCHRD

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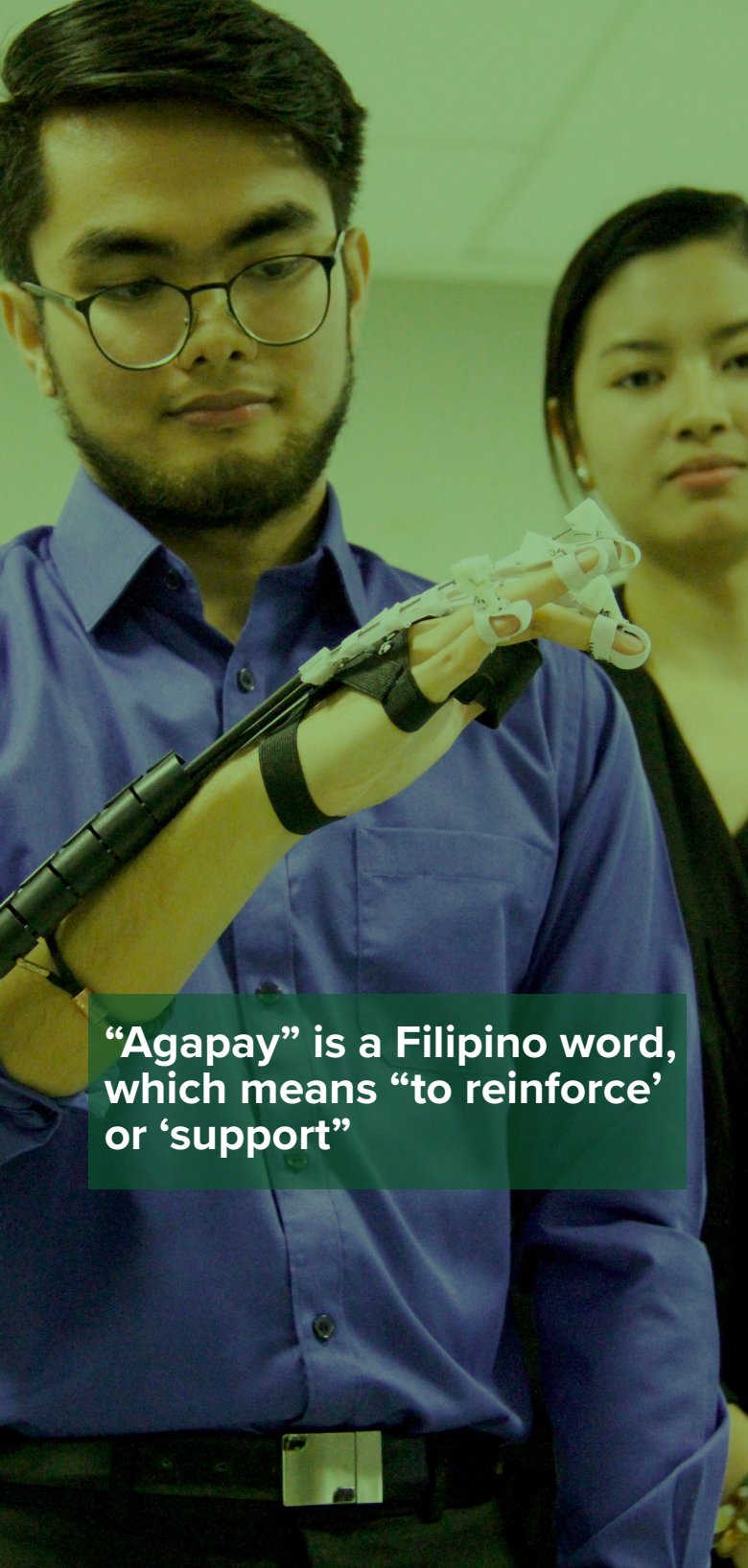Email: nilo.bugtai@dlsu.edu.ph | n.bugtai@yahoo.com

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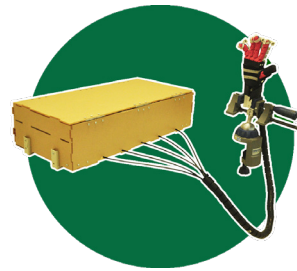# AgapayProject

ROBOTIC EXOSKELETONS
FOR REHABILITATION

BIOMEDICAL DEVICES
INNOVATION AND E-HEALTH
RESEARCH GROUP

AGAPAY ARM

APRO HAND

The AGAPAY Project is geared towards the development of a biomimetic wearable design of a robotic exoskeleton arm that can perform physical and occupational therapy exercises for post-stroke and injured patients with a high performance treatment option leading to a faster recovery rate.

This project is divided into four (4) phases which involves:

Phase 1 - Product design and prototyping
Phase 2 - Safety tests and pre-clinical studies
Phase 3 - Clinical trials
Phase 4 - Technology transfer and
                 manufacturing

IMPORTANCE

The AGAPAY Team focused on developing the device for the upper extremity as it directly improves the region where activities-of-daily-living (ADL) are used.

With the AGAPAY Project's aim to innovate the upper-limb rehabilitation therapy for the Filipinos, patients will be motivated to rehabilitate through the aid of robotics.

DESIGN

The current design is a 12 degrees-of-freedom (DOF) system that accounts for shoulder, elbow, wrist, and finger movements. The device is designed to be comfortable, user-friendly, safe to use, and manufactured at a low cost.

The device is actuated using high power servo motors attached to an adjustable and lightweight frame. Real-time biofeedback system is integrated to record neuromuscular activity using surface electromyography (sEMG). The robotic exoskeleton arm can perform active and passive motion exercises through gamification techniques using integrated haptics and a graphical user interface.

"Agapay" is a Filipino word, which means "to reinforce' or 'support"