



Cover page

Project title: The Devoted Caregiver

Academic Year: 2023-2024

Group Members: Laila Abu Safiya

Department Name: Computer Engineering

Sojod Jamous

Project Type: Hardware

Supervisor Name: Emad Natsheh

Format:

- Single space, Times New Roman.
- 12 pt,
- Maximum 1 page.

Abstract Body:

Items must be provided in the Abstract:

- Why do you think this project is important? Please explain the significance of this Project in brief.
- In your point of view what are the important aspects that should be covered in the project?
- Objective(s): In your view, please explain the main objectives of the project.
- Methodology: Give a brief outline of the application development process.
- Had this project been done before? Are there any similar applications available today?
- **Note:** Please deliver this abstract early to ensure that your Project has been approved by the department's projects committee. **Registration will not be done without this approval.**



Project's Abstract:

Cerebral palsy is a challenging medical condition with no known cure. The sole form of treatment available for individuals with cerebral palsy is physical therapy. This project introduces an innovative mobility chair that not only provides much-needed comfort and assistance but also incorporates essential aspects of physical therapy into the daily routine of these patients.

The chair offers comprehensive massage therapy, providing back massages at different speeds to stimulate blood circulation, effectively addressing a common problem among patients with limited mobility. It also includes foot massage therapy using specially designed foot wraps, especially around the heel area according to Chinese foot mapping principles, which helps facilitate bowel movements, a recurring challenge for many individuals. The chair features a multi-touch movable footrest that stimulates the nerve pathways in the feet, facilitating neural communication with the brain. In addition, there is a hand-held balloon in the chair that gradually inflates and deflates to relieve tension in the hands, which helps relieve muscle spasms and spasms. For safety, the chair is equipped with a headrest sensor to ensure proper head position, preventing choking or discomfort to the patient. It also includes capabilities for monitoring health status, with a built-in wristwatch that measures temperature and heart rate, provides regular reports to the patient's family, and alerts healthcare providers in the event of irregular readings. The chair's functions are activated via a keypad, with each feature programmed at pre-set time intervals to ensure patient safety. In case of any issues related to head or hand balloon position, alerts are sent to family members for immediate attention. This mobility chair offers a comprehensive solution for patients with cerebral palsy and motor paralysis. It bridges the gap between daily life and essential physical therapy, providing comfort and support, all while enhancing the overall quality of life for both patients and their caregivers.

Furthermore, the project is implemented using Arduino and ESP32, utilizing DC motors and sensors, switches, keypads, and a SIM900 module to enable seamless operation and communication, showcasing a synergy between modern technology and compassionate care.