

# HAND GRIP STRENGTH MEASUREMENT ROBOT

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## ABSTRACT

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In recent years, people take more attention in a healthy life. According to the newest research, a strong hand muscle person has a long lifetime than others. Therefore, hand muscle strength measurement could reflect person's health level. Because of this, people need a fast and accurate hand grip strength measurement robot to test their hand muscle. In this project, the robot is designed to be a convenient, fast, accurate and multifunction dynamometer to test hand muscle.

The objective of this project is to design a robot to get hand grip strength measurement for younger, adults and elders. To design a high technical robot, the project adapted electrical technical to replace the traditional mechanical technical. The development of the project is: 1. add voice play device to play sound of number, 2. Create movable LCD to let LCD track the user and 3. Use movable pole to test hand grip measurement semi-automatic. In order to increase the accuracy of results, temperature, age and gender are under the consideration. For the purpose of a convenient design, electrical clock and electronic thermometer are added in the project that the user can watch time and temperature on any time.

The objectives and purposes are finally achieved. The electrical clock display in the LCD and movable LCD is also working under time mode. In the work mode, the temperature is shown in the LCD and users can enter their age and gender to the LCD. The hand grip strength measurement is also tested under work mode and display in the LCD. The final result is calculated according to environment temperature, age, gender and the measurement. The time mode and work mode can exchange by the IR detector. All of components are controlled by STC89C52RC.

The hand grip strength measurement robot will be very popular in the people's living being in the future. To be a home robot, the design can keep improving to achieve the requirement of all users.

Keyword: Movable LCD, Voice play device, Semi-automatic, STC89C52RC.