



**UNIVERSITI TEKNOLOGI MARA**

**INVESTIGATION ON UNILATERAL SHOULDER  
ABDUCTION USING MPU6050 FOR CP PATIENT**

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## **ABSTRACT**

This study was conducted to investigate unilateral shoulder abduction exercise by employing sensor of accelerometer and gyroscope intended to be placed on the arm of cerebral palsy (CP) patient. Currently, many treatments for CP patient on physical rehabilitation was performed by observation involved therapist and CP patient. In view of the fact that most of therapist support and program was documented in written report without data management. Thus, tools for therapist to observe CP patient progress in particular to investigate the unilateral shoulder abduction exercise is introduced. In this work, the accessing angle of freedom and acceleration prototype for the exercise employing MPU6050 sensor is designed. The result is analyzed using spreadsheet for data measurement. The finding shows that the angles measurement taken by MPU 6050 sensor at X axis are approximately the same as the expected angle.

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# CHAPTER 1

## INTRODUCTION

Cerebral Palsy (CP) is not a disease but categorized by paralysis, weakness, incoordination or any other aberration of the motor control centre of the brain. The effect might include learning problems, psychological glitches, sensory defects, violent behaviour of organic origin, have shaking body movements and unclear speech. The goal of rehabilitation is to develop CP children capability to live and take part into society by accomplish the best functional motor, language and intelligent grade for them. Usual treatment and support management for the motor impairments; generally it concentrate on a motion range trainings to avoid and slow contractures (constant muscle shrinkage in the stimuli deficiency) are occupational and physical therapy. In addition, the movements involve the different involvements to develop posture, balance and the functional skills achievement, flexibility trainings to achieve greater range of motion and advanced resistance trainings to develop strength.

### 1.1 Background of Study

Cerebral Palsy(CP) defined by Cruickshank, W. and Ardrie, H. is not disease but a multi-handicapping condition involving a group of symptoms where the condition primarily becomes evident in childhood and it is not spreadable, cannot be healed and usually does not get gradually worse neither is it fatal or congenital [1, 2]. Ndurumo, M.