

# A STUDY OF HORIZONTAL CIRCULAR MOTION BY USING A WIRELESS SENSOR KIT

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One of the most difficult lessons in high school physics is circular motion because of the necessity in relating the various quantities with physics formulas e.g., linear quantities, angular quantities, and Newton's law of motion. Consequently, in this work we are presenting, we created a uniform circular motion experimental kit by using an ESP-32 microcontroller, accelerometer sensor, and gyroscope sensor.

The proposed kit, which is composed of a microcontroller, sensors, battery, and metal block, is connected to a circular plate. This experimental kit can transmit output data to the display module wirelessly. The relationships between the centripetal force, the angular velocity, and changing the radius were studied. The results demonstrate that the centripetal forces varied as expected with the angular velocity and changing the radius.

The advantages of our proposed kit are that the students can collect experimental data in real-time, and the overall price of our proposed kit is low. Finally, this kit is suitable to use in high school classrooms and we have found it useful for attracting students' attention.

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