IC-W02D1-6 Demo Rising Ping Pong Ball

A wheel is connected via a pulley to a motor. A thread is knotted and placed through a hole in a ping-pong ball of mass $m$. A wing nut secures the thread holding the ball a distance $R$ from the center of the wheel. The wheel is set in motion. When a satisfactory angular speed $\omega$ is reached, the string is cut and the ball comes off at a tangent to the spinning wheel, traveling vertically upward with a vertical displacement $\Delta y = h$. Find the frequency of the motor as a function of height that the ball rises.