# Wearable Ringer Device Using Static Load Spring

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The currently used ringers are administered hanging on the portable ringer holder but it poses a risk of accidents and restrictions on activities. This study developed a wearable ringer device to solve these problems. The current principle of administration of IVs is the force of constant gravity due to height differences. We came up with a method of using a static load spring to apply a constant force. The force sensor was used to calculate the output according to the displacement of the static load spring. We quantified and compared the flow rates from the existing IVs hanging on the ringer holder and from the IVs we designed using a static load spring. Through the process of prototyping, our wearable ringer showed a constant flow rate regardless of rotation and orientation, thus, the possibility of commercialization was evidenced.

**Awards Won:**