

# ID110: First Design Contest

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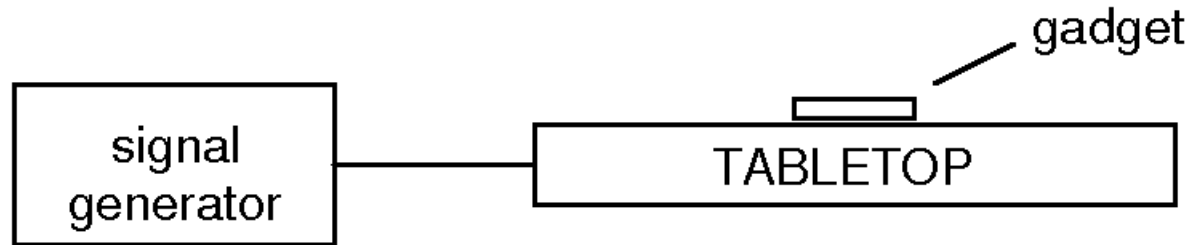
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# 1. Electronic speedometer

- Should display a bicycle's speed in km/h
- Measurement of dc voltage output of a readymade dynamo is not allowed
- Suggestion: count pulses to determine rpm
  - Beam interruption by an obstacle on the spokes
  - Magnetic induction (coil mounted on, say, the fork)
  - Switch
- Accuracy:  $\pm 1$  km/h
- Analog or digital display

## 2. Wireless power transmission



- Gadget placed on tabletop must get its power
- The gadget must not be electrically connected to the tabletop
- Tabletop: 15cm x 15cm x 3cm
- Minimum output voltage of 1.5V (dc)
- Signal generator (up to 10MHz) available to power the tabletop

## 2. Wireless power transmission

- Demonstration with a dummy load to the wireless power receiver
- Credit based on
  - Current supplied before output drops below 1.5V
  - Compactness of the gadget
  - Robustness
- Additional credit for hooking up a gadget-e.g. a clock-to this power source)
  - Make sure that the supply is properly regulated and won't damage the gadget when brought very close