# Two Pins for the Price of One

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<html> <div>One of the most common problems in the world of microcontrollers is running out of resources. Sometimes it&#8217;s memory, where the code must be pared down to fit into the flash on the microcontroller. Other times, as [Fabien] found out when he ran out of pins, the limitations are entirely physical. Not one to give up, he managed to <a href=„https://www.carnetdumaker.net/articles/un-buzzer-et-un-bouton-sur-une-meme-entree-sortie-cest-possible/“ target=„_blank“>solve the problem by using one pin for two tasks</a>. (<a href=„https://translate.google.com/translate?hl=fr&amp;sl=fr&amp;tl=en&amp;u=https%3A%2F%2Fwww.carnetdumaker.net%2Farticles%2Fun-buzzer-et-un-bouton-sur-une-meme-entree-sortie-cest-possible%2F“ target=„_blank“>Google Translate from French</a>)</div> <div/> <div>During a recent project, [Fabien] realized he had forgotten to add a piezo buzzer to his project. All of the other pins were in use, though, so his goal was to use one of the input pins to handle button presses but to occasionally switch to output mode when the piezo buzzer was needed. After all, the button is only used at certain times, and the microcontroller pin sits unused otherwise. After a few trials, he has a working solution that manages to neither burn out itself nor the components in the circuit, and none of the components interfere with the other&#8217;s normal operation.</div> <div/> <div>While it isn&#8217;t the most technically advanced thing we&#8217;ve ever seen here, it is a great example of using the tools at your disposal to elegantly solve a problem. More than that, though, it&#8217;s a thorough look into the details of pull-up and pull-down resistors, how microcontrollers see voltage as logic levels, and how other pieces of hardware interact with microcontrollers of all different types. This is definitely worth a read, especially if you are a beginner in this world.</div> </html>

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