

# Wilson Tool

## Count Me In!

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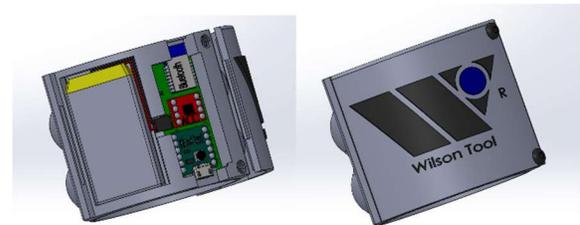
### Project Summary:

Wilson Tool has been in the machine tooling business for 56 years with over 20,000 customers. Many of those customers come to them to outfit their turret press machines with punching tools for cutting and bending metal. The average turret press machine performs 1 or 2 thousand hits each day and is equipped with several dozen different tools to fit any task. Tools wear out over time and need to be sharpened and eventually replaced to maintain a high standard of detail in every cut and bend. Though having so many tools to keep track of between all their machines can interfere with operators' ability to perform regular maintenance. This project focuses on eliminating the guesswork by implementing a device on every tool that will automatically track its status. With this technology, operators will be empowered to prevent tools from being used beyond their prime and ensure quality.



### Design Goal:

The goal of this project is to design a device that can be fitted to a turret press tool, track its condition, communicate that information back to the user, and survive for as long as possible on a single battery charge. The accelerometer translates the tool's motion into data which the microcontroller converts into a hit count. The Bluetooth module communicates how many hits a tool has undergone in its lifetime as well as since its last sharpening. This information helps the user decide when the tool needs maintenance or replacement.



### Design Constraints:

- Build a sleeve for the turret press tool that safely houses the electronics and ensures that the accelerometer reads accurately.
- The sleeve shall be strong enough to survive the rapid movement and pressure of the turret press machine.
- The design must have a thin enough profile such that it will not interfere with other tools inside the machine.
- Ensure that the device can maintain operation for a minimum of six months on a single battery charge.
- Hit counts shall be at least 98% accurate

