



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Filip Sedlacik	Project Number J0331
Project Title Hands Free Turning Music Stand	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal of the project is to design and construct a device which will turn a music sheet for a musician without employing his/her hands.</p> <p>Methods/Materials Tripod, plastic tubing, vacuum cleaner, pedal, strings, rotating arm, custom wood pieces and common fasteners to assemble all together.</p> <p>The design is an original idea, realized purely mechanically.</p> <p>Measured the force needed to turn the arm, and calculated efficiency relative to ideal lever.</p> <p>Results Several iterations of the design lead to a final, mostly functional example. The functionality was demonstrated with a vacuum cleaner and recorded on video. The force needed to turn the rotating arm was too large, limiting practical usage of the device.</p> <p>Conclusions/Discussion The prototype I constructed confirmed it's possible to realize a hands free music sheet turner mechanically but a commercial application would need more refinements. Although the constructed device could turn the pages, the required force on the pedal was so large the stand would tip over without an additional support. I learnt that proper planing and small step improvements with design verification can lead to the functional prototype. I also understood how the force on the lever is calculated.</p>	
Summary Statement I constructed a mechanical device that turns a music sheet hands free without interrupting musician's performance.	
Help Received I designed the prototype myself. My father helped me to cut the wood to sizes according to my plans.	