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*Magnificent Mounted Magnetic Bearings*

Engineers need magnetic passive friction-less bearings because current designs are expensive, unstable, or inefficient. This investigation involved designing and building a more stable and efficient magnetic passive friction-less bearing because magnetic bearings can produce less friction than ball bearings. Therefore, there is less non-usable energy created from friction, so that people can use the saved energy to help in other areas such as housing, transportation, or food production. The essential needs for the design criteria included the following: (1) see if the only type of resistance/friction on the bearing was air resistance, (2) see if the bearings spun 100rpm or higher, and (3) make sure it only took up to 10 minutes to repair the prototype. The prototype met most of the design criteria. The second prototype spun at an average of 270rpm, 170% more than the minimum of the design criteria. The average time taken to repair was 7.5 minutes. Both prototypes did have a little rolling friction, but 99.8% of the bearing had only air resistance on it. Based on the analysis, the next prototype would have stronger magnets and be more compact. Also, it would have more layered magnets and either completely levitate or have a glass friction point. This would allow the prototype to spin faster, replace ball bearings, and be easier to use.