Weekly report

1 My *Accomplishments* this week

1.1 Project 1: *Massive Uniform Control*

- Got a complete list of components for a microscopic imaging system
- Programmed a simulation for a 2-coil EM system. Parameters were measured from the real system. Given 2A input for a coil, 33 Gauss magnetic field was detected along x axis at the workspace center. The simulation gave out a result of 36.8 Gauss, about 11% error. With 2 coils on at the same voltage input, the detected field magnitude doubled, so did the simulation results. The relative permeability of the steel core EM system was decided to be 2.63 ($\mu_r = 1$ without a steel core), by comparing experiment results with and without the steel core. And this relative permeability was applied to simulation.
- Now trying to design a fine tool to measure magnetic fields at multiple predefined locations within a 2×2 mm workspace at the center.
- Time sheet: https://drive.google.com/open?id=1LgOI4783jnWs3CjYf8lRabM0ixTHUJN9iCzz

2 My *Goals* for next week

- A fine tool design for magnetic fields detection

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