Robot Cat Toy

Development Plan

# Mechanical

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Weeks | Due Date | Issue | Description |
| Create gearbox | 2 | 8-26 | 1 | ~~Order screws/bearings for gearbox. Buy a set that also comes with threaded inserts.~~ <https://www.thingiverse.com/thing:3603555>   * Need to design my own gearbox, since there are some things I need changed. Using this example as a reference |
| Slider Mechanism | 2 | 9-9 | 8 | ~~Add new belt (~~[~~amazon~~](https://www.amazon.com/HICTOP-Printer-Creality-Printers-16-5ft/dp/B00YMM6IQW/ref=sr_1_1_sspa?crid=34HSYTO4SCKBQ&keywords=3d+printer+belt&qid=1691359486&sprefix=3d+printer+%2Caps%2C105&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&psc=1)~~)~~   New pulley: <https://www.thingiverse.com/thing:2138421> |
| Extender Mechanism | 2 | 9-23 | 2 | Use a gear rack with servo motor maybe? The gear rack portion extends out. <https://www.thingiverse.com/thing:2072364/comments> |
| Reduce Friction | 2 | 10-7 | 3 | ~~Add new belt (~~[~~amazon~~](https://www.amazon.com/HICTOP-Printer-Creality-Printers-16-5ft/dp/B00YMM6IQW/ref=sr_1_1_sspa?crid=34HSYTO4SCKBQ&keywords=3d+printer+belt&qid=1691359486&sprefix=3d+printer+%2Caps%2C105&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&psc=1)~~)~~ |
| Prototype Optimization | 2 | 10-27 | 4 | Overall optimization/shaping of all parts |

Linear Actuators:

1. Belt driven
   1. Slippage at high acceleration
   2. Heat
2. Rack and Pinion
   1. Helical rack is better than ball screw
   2. More precise than belt driven and responds better to acceleration

Ultimately, they will both get the job done. Try belt driven first

Have prototype finished by October 27

# Electrical

1. Electronics Development Planning (issue-7)
2. Component selection (issue-5)

Software

1. Software Development Planning