

二零二三年香港學生科學比賽

延伸摘要範本(發明品)

(字數上限:2,500字, 頁數上限:3 頁)

隊伍號碼:

作品名稱:

參賽類別:發明品

就我們所知, 坊間 有/沒有^{*} 類似的作品; (如有) 相關產品連結如下:

我們的作品所作出的改良 / 其不同之處為:

*請刪去不適用。本比賽重視作品的原創性, 學生須於開始研究或發明前作足夠的文獻搜索以確保自己的作品具一定獨特性並列出相關參考資料。

I. 前言

- 介紹背景資料, 並表述對作品對所關注的受眾的了解
 - 概述所參考的文獻及/或相關技術或設備的資料, 並列出可靠的資料來源
 - 撰寫作品概要, 舉出要點以針對受眾的實際需要及關注, 並陳述作品嘗試填補的研究/技術
缺口

II. 目標

- 列出作品的目的

III. 研究方法

- 概述採用的方案, 例如設備、材料、測試及相關的實驗
- 以科學理論支持所選用的實踐方法

IV. 發明品的設計

- 描述發明品的設計和原理(例如: 描述項目的意念、並舉出原形及不同的創意方案)
- 展示相關草圖、圖畫或照片

V. 相關應用 / 市場需求

- 解釋發明品的相關應用和功能
- 指出市場的需求和該發明品的效益
- 討論有關限制, 並就現有相關研究作對比(如有)

VI. 如發明品將角逐可持續發展大賞, 請列明作品與哪一個可持續發展目標有關, 並說明參與角逐此獎項的原因。(字數上限500字)

VII. 如發明品將角逐社會創新大賞，請列明作品所針對的目標群組或社會議題，並說明參與競逐此獎項的原因。(字數上限:500字)

VIII. 結論

- 撰寫以數據為本的結論及有關發明的後續安排
- 證明作品是否達到研發目標

- 我們的作品是以之前的比賽作品為題進行了持續研習，有關改良如下：

Hong Kong Student Science Project Competition 2023

Template of Extended Abstract (Invention)

(Word Limit: 1,600 words, Pages: 3 pages only)

Team Number:

Project Title:

Project Type: Invention

To our best knowledge, there are / ~~are no~~ * similar works in the market; (if there are,) related product links are as below:

<https://www.amazon.com/dp/B09382DHHY?tag=thesprucepets-onsite-prod-20&linkCode=ogi&th=1&ascsubtag=4175145%7Cn0af55322cb934d14bebe39a8c6d8c85808%7CB09382DHHY>

https://www.amazon.com/dp/B0953SDCRG/ref=sspa_dk_detail_0?pd_rd_i=B0953SDCRG&pd_rd_w=WxLIQ&content-id=amzn1.sym.af9528d2-09ba-47ee-b909-59e3022bebe1&pf_rd_p=af9528d2-09ba-47ee-b909-59e3022bebe1&pf_rd_r=WQT3190ZBPA9NKY5PJ3N&pd_rd_wg=74CzK&pd_rd_r=21da39ff-502b-40d5-abd3-53cdac6b49&s=pets-supplies&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhaWw&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEyRjNaVlFaVVoyOTJXJmVuY3J5cHRlZElkPUEwNzEyMDc2M0hYR1dHQkpSNUc3WCZlbnNyeXB0ZWRBZEIkPUEwNDcwNTM2MzA4VkVBNEs1MVIHVVSZ3aWRnZXROYW1lPXNwX2RldGFpbCZhY3Rpb249Y2xpY2tSZWRpcmVjdCZkb05vdExvZ0NsaWNrPXRydWU&th=1

<https://www.amazon.com/dp/B089GG57QL?tag=thesprucepets-onsite-prod-20&linkCode=ogi&th=1&psc=1&ascsubtag=4175145%7Cn0af55322cb934d14bebe39a8c6d8c85808%7CB089GG57QL>

The enhancement our project made / the difference with related products are:

The application will send daily reminders whenever food storage is running low through the weight sensor in the machine, and they cease when the owner refills the storage with more food. It also has a full-proof mechanism accessible only to the owner whenever access to the food storage is needed, in order to prevent tampering with the food inside by other factors.

**Please delete if not applicable. The competition values the originality of works. Students must do enough literature research to ensure that their works are unique and list relevant reference materials before starting research or invention.*

I. Background

Humanity is in one of its most peaceful eras (Pinker, 2007), and with domestic bliss comes domestic pets raised and fed for our own entertainment. With the rise of demand for pets in recent decades (Larkin, 2021), its complementary supplies also increase in demand. There are various things to buy for a pet - whether it is a bed or food-related, these are all necessary things for a pet to grow and flourish in a safe home. However, the most important thing is affection, which unfortunately, has been quite lacking for pets since neglect is the most common type of pet abuse inside the family. (Monsalve, 2018) That is why with our project, Neko Feeder, we strive to feed neglected pets the food and affection they deserve. Through careful monitoring of our webcam controlled by our application, and efficient time management with the help of our timer, we aim to fill your cat's bellies and give them the affection that is absent while you are away.

II. Objectives

Fill the bellies of pets while owners are busy and/or away.

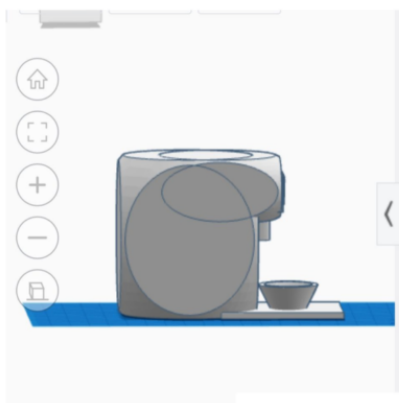
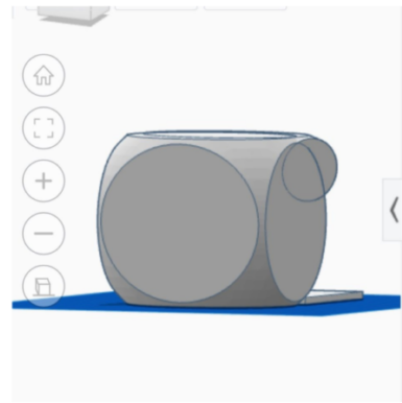
III. Methodology

With the owner's best interest at heart, we researched the preferred household pet and came to a conclusion that it was cats that were most neglected due to preference over other pets and feline's reputation of having a hostile nature. We brainstormed different ways to help cats and unanimously agreed on creating an attentive cat feeder. With the consideration of the pet's safety and the owner's convenience in mind, we came to design and make the cat feeder you see now.

IV. Design of Invention

Though our main goal was to create a cat feeder, we wanted the design to be family friendly and accessible to all ages. The texture of the surface is decided as polypropylene, a smooth non-toxic plastic known to be the main source of many marketable products. Originally, the product was supposed to be a square-shaped machine, however during the final stages of our redesigning, the edges were changed to be round to ensure the safety of owners and pets alike. The color of our product is a pastel pink, pleasing to the eye and a common color among children. The volume of our food containers is higher than the average food containers of other cat feeders of. To top it off, we placed the eyes and whiskers of a cat onto the main head of the product to fit our brand.

(The following images are NOT the final product.)



V. Application / Market Need

Our main focus for this invention are for pet owners who wish to monitor and maintain the health of their pets. Nowadays, the price of few cat feeders that exist in the market have skyrocketed, and though they promise a healthy diet for pets, it is mainly manhandled and unstable. Our Neko Feeder ensures pet owners that, with our webcam and timer, pets can have both nutritious and delicious food at a price that is accommodating to a wide range of customers. Furthermore, owners can install an application that guides them through the Neko Feeder's function with their mobile phones.

However, even Neko Feeder has its limits. Since it's functions mostly revolve around a phone, a good internet connection is needed or else the functions won't do its job. Since the machine itself is customisable, it also requires regular monthly check-ups and reinstallments to adjust to the owner and the pet's needs (a two-year long warrant is provided), for example digital clocks or a larger bowl for consumption. Otherwise, the machine will dispense food up to 1/2 cup of pet food in 1/8-cup increments. The webcam is also set to monitor pets at a fixed quality of 720p.

VI. If your team will compete the Sustainable Development Award, please indicate the specific sustainable development goal the project is related to, and provide justification for competing for this award. (Word limit: 300 words)

The materials used for our product is widely reusable in hopes of future products following our example. For example, polypropylene, which is known to be widely recycled and reused in other materials., including fibers for clothing. This way, not only does our invention aid the current generation, it will not compromise any resources or the environment of the future.

VII. If your team will compete the Social Innovation Award, please list the target group or social issue the project focuses on, and provide justification for competing for this award. (Word limit: 300 words)

With humanity being in the most peaceful times in our lives and the economy reaching its peak, pets, cats especially, are brought into a domestic environment and easily neglected by busy owners. Our product aims to serve as a necessity for the pets that receive poor treatment due to negligence.

VIII. Conclusion

In conclusion, our Neko Feeder is very suitable for owners who are busy and can be easily neglectful towards their pets. Our Neko feeder's design is family-friendly, while the material of the machine is also environmentally friendly. Unlike other pet feeders in the market, we have an affordable price for all kinds of families compared to the average price. Also, the food schedule can be edited or recommended by our system to ensure that your pets enjoy a nutritious and delicious meal. According to Technavio, the global market for smart pet feeders is increasing rapidly for 9.89% a year, and buyer's key of purchase criteria is quality and price of cat feeders. We believe that our invention Neko Feeder can fulfill such needs.

□ **Our project is developed based on previous project and the enhancement is below:**

<https://www.amazon.com/dp/B09382DHHY?tag=thesprucepets-onsite-prod-20&linkCode=ogi&th=1&ascsubtag=4175145%7Cn0af55322cb934d14bebe39a8c6d8c85808%7CB09382DHHY>

https://www.amazon.com/dp/B0953SDCRG/ref=sspa_dk_detail_0?pd_rd_i=B0953SDCRG&pd_rd_w=WxLIQ&content-id=amzn1.sym.af9528d2-09ba-47ee-b909-59e3022bebe1&pf_rd_p=af9528d2-09ba-47ee-b909-59e3022bebe1&pf_rd_r=WQT3190ZBPA9NKY5PJ3N&pd_rd_wg=74CzK&pd_rd_r=21da39ff-502b-40d5-abd3-53cdaacc6b49&s=pet-supplies&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhZWw&sp_La=ZW5jcnlwdGVkUXVhbGlmaWVyPUEyRjNaVlFaVVoyOTJXJmVuY3J5cHRlZElkPUEwNzEyMDc2M0hYR1dHOkpSNUc3WCZlbnNyeXB0ZWRBZEIkPUEwNDcwNTM2MzA4VkVBNEs1MVIHVVSZ3aWRnZXROYW1lPXNwX2RldGFpbCZlY3Rpb249Y2xpY2tSZWRpcmVjdCZkb05vdExvZ0NsaWNrPXRydWU&th=1

<https://www.amazon.com/dp/B089GG57OL?tag=thesprucepets-onsite-prod-20&linkCode=ogi&th=1&psc=1&ascsubtag=4175145%7Cn0af55322cb934d14bebe39a8c6d8c85808%7CB089GG57OL>