

Hong Kong Student Science Project Competition 2023
Template of Extended Abstract (Invention)

Team Number: JAPE202
Project Title: Smart U-trap
Project Type: Invention

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The U-trap is an essential plumbing component that prevents harmful gases and odours from entering homes and buildings through drain pipes. While regularly filling the U-trap with water is important for maintaining plumbing hygiene and preventing the spread of pathogens and bacteria, it can be inconvenient for vulnerable individuals. To address this issue, a device has been designed that automatically pours water into the U-trap when the water level is low. The device includes a water pump, a microchip sensor circuit, a water valve, and a battery. Through some coding, the infrared sensor checks the water level and triggers the water pump to pump water into the U-trap when it falls below a certain level. The device beeps to notify the user that it's working, and stops pumping water once the water level returns to the desired position. Designing something that helps people requires creativity, hard work, and teamwork, and can be a rewarding experience.

二零二三年香港學生科學比賽
延伸摘要範本 (發明品)

隊伍號碼：JAPE202

作品名稱：智能 U 型隔氣彎管

參賽類別：發明品

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謝顯銘

U 型隔氣彎管 U-trap 是防止有害氣體和異味透過排水管進入住宅和建築物的重要水暢通元件。定期注水入 U 型隔氣彎管對於維持衛生和防止病原體和細菌的傳播非常重要，但對於弱勢人群來說可能不方便。為了解決這個問題，設計了一種設備，當水位低時自動注水到 U 型隔氣彎管中。該設備包括水泵、微型晶片感應電路、水閥和電池。透過編程，紅外線感應器會檢查水位，當水位低於一定水平時觸發水泵向 U 型隔氣彎管注水。該設備會發出提示音，通知用戶正在運作，一旦水位回到所需位置，就會停止注水。設計能夠幫助人的發明品需要創造力、努力和團隊合作，是一種非常好的體驗。