Braving the Epidemic
敢創抗疫

Ingenious body temperature-taking robot offers both accurate readings and low risk of cross-infection

Kung Hei Fat Choi!" Mark Mak, Co-founder of Roborn, cried out as he picked up a call on the first day of Chinese New Year, On the other side of the line, it was Mark's business partner, fellow co-founder Professor Larry Poon.

The professor sounded cautious. "A complete lock down has taken place in [the central Mainland Chinese city] Wuhan! We can't take this virus lightly and it could be another SARS situation. I expect that the Hong Kong Government will take measures soon to stop the spread of the disease — we should do something immediately, too."

Immediately, Roborn quickly assembled the company's team of 10 and started to work on average 20 hours a day during the holidays. In just 15 days, and 3,000 intense work-hours later, one of Hong Kong's first 5G-enabled epidemic prevention smart robots was created. Its name: PEP3000.

Right from the beginning of the outbreak, Hong Kong braced itself for a possible hike in confirmed cases. One of the first preventive measures then, was to take people's temperature checks. Yet, Mark and Larry saw serious inadequacies in all the existing devices.

Portable devices, used in close-contact to a person's forehead without sufficient protective gear, they reckoned, could easily increase the risk of cross-infection, and the accuracy of these devices leaves a lot to be desired. Meanwhile, free-standing remote checking systems could be prone to giving false alarms.

Mark remembers the team's first thoughts on developing the new robot. "The hope was to reduce the pressure faced by front-line medical professionals [by reducing the number of infections]. Robots can be flexibly deployed in situations in response to the individual needs of different facilities." From initial discussions to designing the robot on the drawing board, to the development and actual physical production, the robot was completed in only 15 days. Such an amazingly swift development came down to the fact that the company was staffed by highly capable specialists, already highly knowledgeable in the fields of Artificial Intelligence, 5G, robotics, IoT and software development. Co-founder Prof Larry Poon, meanwhile, teaches EMBA and MBA courses at the Chinese University of Hong Kong.

With a cruising speed of one metre per second, the PEP3000 robot can carry out body temperature checks while patrolling. It is equipped with a built-in intelligent thermal imaging camera system capable of keeping an

accurate reading of bodily temperatures within a monitoring distance of five metres. As it is connected to a 5G network, while being compatible with 4G and Wifi, it can greatly reduce the delay in sounding the alarm on individuals with abnormal body temperature, making it as quick and accurate as necessary to catch abnormal body temperatures.

Quick facts

- Featuring the technologies of 5G, Artificial Intelligence, robotics, and with remote body temperature checking capabilities, PEP3000 took the team only 15 days to complete.
- The epidemic prevention smart robot employs a high-precision thermal imaging system with an error of 0.01 degree Celsius.
- Adopted by multiple government agencies and NGOs alike, including the EMSD and Transport Department, as well as the Hong Kong Red Cross, the unique product has piled up millions of Hong Kong dollars' worth of new business in a relatively short period of time since its launch.

Company Profile

Roborn uses a motion control system as its core technology, together with 5G, Artificial Intelligence, IoT, and cloud computing to drive and develop comprehensive robotic products and solutions. The 5G Motion Control Humanoid Robot project developed by Roborn received the 2018 Hong Kong Awards for Industries (HKAI) in equipment and machinery design; Roborn also won the ICT Startup Award Grand Award, and the ICT Startup (Hardware & Devices) Award Gold Award in 2019.

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Learn more about
Roborn (PEP3000)

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「恭喜發財!」農曆新年大年初一，路邦科技聯合創辦人兼首席技術官麥騫譽Mark的電話響起，來電的是公司另一創辦人潘嘉陽Larry，Mark立即興奮地拜年。聽到的卻是Larry緊張的聲音「武漢封城了！這個肺炎疫情相當不妙，有可能是沙士2.0。香港應該很快會有措施應對，我們也應該立即行動！」於是路邦上下10人團隊在農曆年假期間每日工作20小時、經過15日合共3,000個專業工時，終於研發出全港首個5G智能防疫機械人「PEP3000」。

新冠病毒疫情來襲，全城嚴謹戒備。香港防疫策略的第一道防線在於體溫檢測，惟潘嘉陽及麥騫譽都認為，這卻是交叉感染最高風險一環。前線工作人員及保安員在沒有足夠保護裝備下近距離為人群量度體溫，手執的溫度計出錯機會又高；就算部分公共場所設置人體測溫系統作遠距離偵測，但缺乏人工智能容易出現誤鳴。

「PEP3000防疫機械人」每秒可移動1米，可一邊巡邏一邊監測；機械人通過內置人工智能的視像鏡頭探測5米範圍內的目標，辨別人體前額位置探測體溫；機械人更連接5G網絡並兼容4G和Wifi，能減低與後勤辦公室和警佈系統之間的延緩，要「捕捉」體溫異常人士更加「快狠準」。

麥騫譽表示：「研發防疫機械人的初衷是減少前線醫護壓力，機械人靈活性大，可因應不同用家需要靈活部署，故亦適用於其他公共設施。」由商討、構思、製作與生產機械人，整個過程僅花了15天，多得公司雲集AI、5G、機械人技術、物聯網(IoT)、軟件程式等多方面的專才，而聯合創辦人潘嘉陽更是中文大學教授。

速覽

- 具備5G、AI、機械人技術和遠程體溫監測的機械人，僅花15天研發成功。
- 機械人採用達FDA標準的攝像鏡頭，準確度誤差只有0.01度，讓醫療機構安心採用。
- 獲多個政府部門及非政府組織如機電工程署、運輸署、紅十字會等廣泛採用，短時間內為公司帶來數百萬元訂單。

公司簡介

數碼港社群成員路邦以動感控制系統為核心技術，配合5G、AI、IoT、Cloud推動及發展全面化的機械人產品及方案。路邦5G動感機械人項目於2018年榮獲香港工商業獎：設備及機器設計大獎，及2019年香港資訊及通訊科技獎硬件與設備金獎及資訊科技初創企業大獎。

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