



The Samsung Family Hub Smart Fridge suggests recipes and lets you manage your groceries, control other smart devices and even enjoy entertainment right on the touchscreen on one of its doors

THE FUTURE IS NOW

未来即是现在

Once the domain of super geeks and the super-rich, the ultra-smart home is only getting smarter, thanks to advancements in the Internet of things. Michele Koh Morollo reports

超级智能家居不再是极客和超级富豪所专有，亦越来越聪明，这都得归功于“物联网”的进步。

Each time you put on your AirPods to enjoy music streamed from Spotify or track your daily steps with your Fitbit, you are tapping into the Internet of things, or IoT. On the home front, IoT is the increasingly common ecosystem where web-enabled appliances and devices (the “things”) communicate with one another and to the cloud to seamlessly carry out tasks that would otherwise need to be done manually.

“Today, we can use a mobile app or smart TV hub to set automated timers for our entrance foyer lights, set the temperature for a bath or shut the window

blinds. Homes can be equipped with smart irrigation, temperature sensors, Wi-Fi-controlled light bulbs, voice-controlled thermostats that can even read the news, and home energy monitors that let you track your electricity and water usage in real time,” says Jeremy Tay, co-founder and director of home-grown interior design studio Prestige Global Designs. “Home IoT enhances our living experience. As our smart products become more integrated, we will rely less on manual intervention.”

Flip a switch to turn on the lights, or start the day by turning on the coffee maker? How mundane! Virtual

assistants such as Amazon Alexa and Google Assistant allow you to control smart devices within the home via voice commands, which also replace online text searches; Wi-Fi smart plugs for \$30 or so easily allow “dumb” devices such as an old stereo around the house to be controlled or automated via an app.

NEW DOMESTIC FRONTIERS

Automation, however, is just the beginning. The next level of IoT incorporates artificial intelligence (AI), allowing smart home appliances to not only relieve you of manual tasks, but also learn your habits and preferences, and eventually be able to perform tasks in anticipation of your needs. Products with AI already exist: The iRobot Roomba, for instance, can remember the layout of your home, create a map of the most efficient movement patterns and return to the charging station when its battery is low.

AI also takes the existing “fuzzy logic” of washing machines to the next level. In September at the tech trade fair IFA 2019 in Berlin, LG announced time- and water-saving washing machines that can detect the load volume and clothing fabric type and, tapping into its cloud of big data, automatically apply the best

wash cycle that minimises damage to clothes. The machines can also be controlled using voice commands or the LG Smart ThinQ app.

Current smart ovens, too, can recognise food and automatically apply the right settings, and come with cameras that let you keep tabs on, say, how that roast is doing. A new concept oven by Whirlpool will project recipe suggestions with video instructions on the oven door based on family preferences as well as how much time everyone has for dinner (it syncs with everyone’s calendars); it’ll also reorganise recipe steps so different dishes can get prepped, cooked (on the appropriate oven shelf) and then plated at the same time.

Gone are the days when you end up throwing out expired food because you bought more than the family needs. Smart fridges have inbuilt cameras to let you visually take stock; some track food’s expiry dates and even suggest recipes – and set other smart devices such as the oven – based on ingredients inside the fridge. Samsung’s Family Hub Smart Fridge also retrieves shopping lists shared by different members of the family, and groceries and food deliveries are but a few taps on the fridge’s touchscreen away. Other bonuses: answer a phone call, converse with someone at your front door, and even mirror your Samsung TV on the fridge’s screen so you’re not left out if you’re cooking up a storm as the rest of the family catches the newest episode of *The Walking Dead*.

FASTER, SMARTER

With beacon technology, your smartwatch or smartphone, or a miniature Bluetooth tag that you can attach to, say, your bedroom slippers, enables high-level customisation of a home’s spaces to individual preferences – for instance, changing the setting of the air conditioner, dimming the lights and turning on some music when you step into a room.

What we’ll soon see more of at home, thanks to IoT, are applications for healthcare and wellness, security, taking inventory, home-based learning, and sustainability. The 5G rollout will only accelerate the capabilities, with faster connectivity to handle the huge volumes of data from smart devices.

The innovative Allblanc Mirror Fit displays workout videos and lets you attend live fitness classes.

In wearable devices, AI-enabled biometric trackers and fall detectors can help give the elderly as well as patients with chronic diseases such as asthma, and their family members greater peace of mind.

Home systems can send push notifications when the kids are safely home, or if a tap or device is left running (and allow you to shut it off remotely). Existing smart sensors and microphones can alert homeowners – and their security firms or emergency services – to gas or water leakages and even the sound of breaking glass or smoke detectors going off.



The Control4 hub connects entertainment, climate control, security, intercoms and lighting

While predictive maintenance is more widely applied in industrial contexts now, it’s a matter of time before it becomes commonplace for manufacturers to monitor and analyse data regarding the condition of your home appliances. So, instead of servicing your air-conditioning system every three months regardless of necessity, a house call will be arranged only as required. This helps prevent annoying breakdowns and cuts maintenance costs.

Bosch has developed a BML100PI projection module that enables manufacturers to create interactive smart shelves – whether in a fridge, a storage solution, a kitchen pantry or a wardrobe. With gesture and touch recognition, and used with a digital assistant extension, it can take inventory of the contents, pencil in a supermarket run on your calendar or show online shopping options if pantry supplies are low, make outfit recommendations based on the weather forecast, and so on.

A sophisticated, well-planned IoT-enabled home can also boost a property’s resale value. According to Hazriq Surattee, founder of smart home consultancy Digital Homes Group, homeowners designing a new home should future-proof their properties by laying Cat8 instead of Cat5e/Cat6 cables. He also suggests including more Cat8 Internet cables to allow for future IoT expansion and scalability, adding that it’s crucial to ensure that all your devices from different brands can be controlled from a single home automation ecosystem such as Control4.



每次使用AirPods无线耳机享受音乐服务平台 Spotify传来的音乐,或用Fitbit记录每天步行多少步,你都在和物联网(英文简称:IoT)打交道。物联网已成为日益普遍的生态系统:各种装置与设备(即物联网中的“物”)可以通过际网络或云端进行沟通,无缝执行各项指令,没有人介入。

“时至今日,我们可以用移动应用或智能电视设定门口灯光的自动开关时间,设置洗澡水温度,或把百叶窗关上。家里可以装置智能灌溉器、温度传感器、Wi-Fi控制灯泡、能读取新闻的声控恒温器、实时追踪电力和用水量的能源监控器……”室内设计公司Prestige Global Designs创办人兼董事Jeremy Tay说。

要动手按开关才能开灯或煮咖啡?多无趣!Amazon Alexa和Google Assistant等虚拟助理,可以让你在家中声控智能设备,甚至代你上网搜寻所需资料;花约\$30买个Wi-Fi智能插头,“傻瓜”旧音响也能轻松通过应用程序控制或自动化。

新家居时代

自动化只是开始。物联网的下一步,是与人工智能结合,让智能家居设备减轻家务负担,甚至了解你的习惯和喜好,预先按需求完成任务。人工智能产品已经存在:例如iRobot Roomba能记住你家中布局,创建最有效率的活动地图,并在需要充电时自动归位。

人工智能更把洗衣机的“模糊逻辑”系统,推向另一层次。今年9月,LG于柏林国际消费电子展上推出的洗衣机,可探测洗衣量和衣物材质,从而利用云端大数据分析出对衣物造成最小破坏的最合适洗衣程序,既省水又省电。洗衣机也可通过语音指令或ThinQ应用来控制。

当前的智能烤箱,可识别食物并自动执行正确设置,还可让你通过摄像头监控煮食状况。惠而浦(Whirlpool)的新概念烤箱,更可以根据各家人的喜好及用餐时间(它同步整合每个人的日程表),建议菜单,在烤箱门上播放食谱视频。它还可以重新组织所有步骤,同时为多道菜着进行备料和(置放在适当的烤箱层架上)烹调,让所有菜肴在同一时间上桌。

内置摄像头的智能冰箱,可有助更好地掌握需求,如掌控食物有效期,或根据里边食材建议食谱,甚至设定烤箱等其他智能设备。三星(Samsung)的Family Hub智能冰箱,还可以集合各家庭成员的购物清单;点击冰箱触摸屏,即可进行网购、安排收货时间;你还可以用来接听电话,与门外来客对话,甚至在烹饪时用来同步观看家人正在客厅里欣赏的电视节目。

更快更聪明

通过信标技术(beacon technology),智能手表、智能手机,甚至标上微型蓝牙标签的室内拖鞋,都可以用来高度“定制”你的家居空间:比如在你踏入房间那一刻,调整空调、灯光,或播放你所爱的音乐。

有赖于物联网,我们很快就可以在家中看到更多医疗保健、保安、物资、在家自学、可持续发展等相关应用。5G将使连接速度加快,数据成倍增加,智能设备和应用的能力更加提高。

革新性的Allblanc Mirror Fit通过锻炼视频让你“现场”参与健身课程。人工智能穿戴设备如生物识别计步器、跌倒侦测器等,更可以让家有长者及慢性病患的人放宽心。

家居系统也可以在孩子回家后发送通知,或通报你用遥控方式,把水龙头或任何设备上。煤气泄漏、漏水,甚至玻璃碎裂或烟雾警报器响时,智能感应器和麦克风还可以通知屋主、保安公司或相关紧急服务。

虽然预测性维修目前较广泛用于工业环境中,但在可预见的未来,制造商将可用数据来监控你的家电状况,再按实际需要安排维修,而不是硬性规定一个维修周期。这将有助防止故障并降低维修成本。

博世(Bosch)研发了一套BML100PI投影模块,帮助制造商创建交互式智能货架:无论是冰箱、储存空间、厨房储物柜或衣柜。一个手势或是触碰一下屏幕,再配合数字助理应用,就可以点清库存量;食材与杂货快要用时,提醒你何时跑一趟超市或是进行网购、根据天气预报建议合适的服饰等。

一个精心规划的物联网智能家居,也可提升物业的转售价值。智能家居咨询公司Digital Homes Group创办人Hazriq Surattee表示,屋主在设计新住宅时,应该设想得更长远,铺设CAT8而不是CAT5e/CAT6 电缆。他建议多铺设一些CAT8互联网电缆,方便物联网的拓展。重要的是,他认为必须确保所有不同品牌的设备,可以通过单一智能家居系统(如Control4)来控制。