

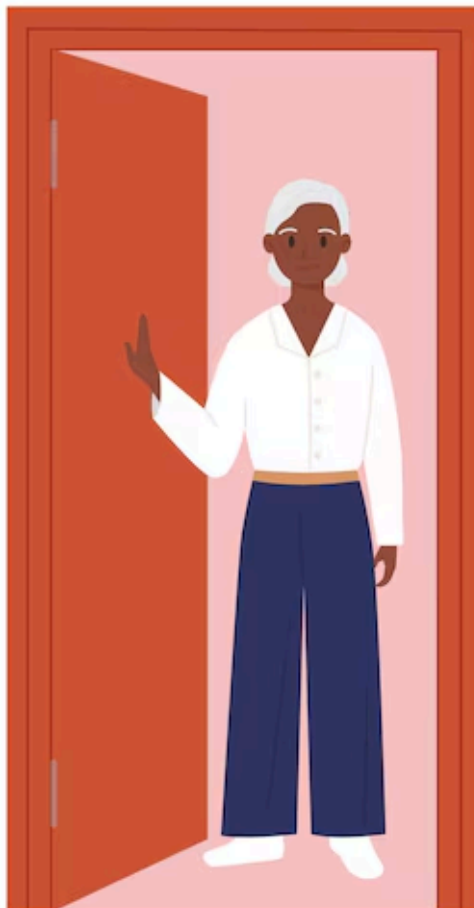


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GET OUT GET COFFEE

IoT challenge by Jorge Clausen and María Vivar



Get Out Get Coffee

This IoT system is designed to promote both physical and social engagement, particularly for individuals who, for various reasons, spend extended periods indoors. Prolonged isolation can lead to loneliness, inactivity, and deteriorating mental well-being. By using a sensor installed at the front door, the system monitors how long a person remains inside and sends reminders based on the time they have spent without leaving the house. These reminders are personalized to include suggestions for activities such as going for a walk, visiting a local event, or meeting up with friends. Additionally, the system helps reduce feelings of isolation by encouraging outdoor activities and fostering engagement with the community, friends, and family.

The system not only encourages the user to be more physically active but also tracks the time they spend outdoors or participating in social activities. This progress tracking is used as a motivational tool, helping to create healthy routines by reinforcing positive behavior through gamified rewards. Users can accumulate points for going outside, which can be exchanged for rewards, such as a free coffee at local partner cafés. The system will also display visual analytics, such as daily, weekly, and monthly charts, showing the user's activity patterns over time. These insights allow users to track improvements in their outdoor activity, observe trends, and set personal goals. Moreover, if the user has someone monitoring their well-being, such as a caregiver or family member, they can also access a simplified version of the user's progress. This ensures that loved ones are reassured and can intervene if needed.

During the course of the project, a functional prototype (MVP) will be developed. The MVP will include the following key features:

- **Indoor time detection:** The system will monitor how long the user stays indoors without leaving.
- **Reminder and suggestion notifications:** Based on the data, the system will send personalized reminders to the user with suggested activities or prompts to go outside.
- **Basic user interface:** A simple interface, accessible through a mobile app or desktop dashboard, where the user can view their progress in the form of visual graphs.

The goal of this MVP is to develop a simple but impactful system that can later be scaled with more advanced features, such as integration with more sensors (e.g., for monitoring indoor activity), cloud-based analytics, and integration with third-party wellness services.

By using data analytics and offering a gamified approach to staying active, "Get Out Get Coffee" empowers users to take control of their physical and social well-being, while also providing peace of mind to their loved ones or caregivers.

Use case scenario:

This system is primarily designed for elderly individuals or people with depression who live alone and may find it challenging to motivate themselves to leave the house. These individuals may be at higher risk of experiencing isolation, loneliness, and reduced physical activity due to long periods spent indoors. The "Get Out Get Coffee" system is intended to provide gentle prompts that encourage them to engage with their surroundings and participate in social or physical activities.

Once the system is installed at the user's front door, it monitors how long they remain inside without going out. If the system detects that the user has stayed indoors for an extended period, it sends personalized reminders to their mobile device. The system also provides tailored suggestions based on factors such as the user's preferences or the weather, making it more relevant and engaging for the individual.

Example:

Marta, a 70-year-old woman, lives alone in her apartment. As she has aged, she finds it increasingly difficult to maintain a regular routine. Sometimes Marta spends days indoors without realizing it. This lack of physical activity and social interaction leaves her feeling lonely, and she's aware that her health could be impacted.

With the "Get Out Get Coffee" system installed at her front door, Marta's starts getting help. After 48 hours of staying indoors, the system sends a reminder to her mobile device with suggestions such as, "It's a great time to take a walk in the nearby park. The weather is lovely today!" Marta appreciates this gentle nudge and decides to take a stroll. Over time, these reminders help her re-establish a routine of going outside more regularly, which boosts her mood and physical well-being.

Additionally, the system can escalate its notifications if Marta continues to remain indoors for several days. For example, if after four or five days she still hasn't left her apartment, the system can notify her son, Javier, who lives nearby. Javier then receives a message saying, "Marta hasn't been outside in a while. Maybe it's a good time to check in with her." This feature provides peace of mind for Marta's family, ensuring that someone is aware of her activity levels and can encourage her to get out or even visit her.

The system's progress tracking also helps Marta visually see how her activity patterns are improving. Every week, she checks the mobile app to view a chart showing how many times she has gone out for walks or other activities. This feedback gives her a sense of accomplishment and motivates her to continue staying active. Her son Javier can also monitor her progress, allowing him to stay connected to her well-being even when he's not nearby. Another way this app encourages Marta is with a reward points system. When Marta goes out she wins points that she can later redeem in things like a free coffee with one of our partnered coffee shops. This not only makes the experience of going out more rewarding, but it also helps her socialize even more since the reward is to get out.

In addition to enhancing Marta's life, the system benefits local businesses in her neighborhood. By collecting anonymized data on when people like Marta tend to leave their homes, businesses can better plan their promotions or services during peak activity hours, improving the overall vitality of the community.

This system becomes an integral part of Marta's routine, acting as a supportive tool that helps her maintain a healthy and active lifestyle while also keeping her family informed. It ensures that she stays engaged with the world outside her home, fostering both physical health and emotional well-being.

Advantages of the proposed system compared to existing alternatives

Innovation vs. Invention:

- **Innovation in simplicity:** While there are already complex home monitoring systems, the simplicity of this system is its key differentiator. It doesn't require cameras or intrusive monitoring; it simply logs whether or not the user has left their home.
- **Ease of use:** Compared to more complex health monitoring or smart home systems, this solution is easy to install and use, making it accessible to elderly users who are not familiar with technology.
- **Behavioral Change Focus:** It subtly influences users to improve their daily routines. While other systems may notify caregivers of inactivity, they do little to actively encourage the individual to engage. Instead this system taps into habit-forming psychology, reinforcing positive behavioral change like going outside with rewards (such as accumulating points for coffee at partnered cafés).
- **Data-Driven Insights:** The system has the ability to generate aggregated data insights—such as when most people are leaving or staying home—can be of significant value to businesses and service providers. It can help local businesses optimize their services and marketing strategies based on behavioral patterns, providing a potential revenue stream through data analytics that competitors may not offer.

Solution architecture diagram

Sensors and actuators to be used:

- **Infrared sensor (transmitter/receiver):** Detects when the user enters or exits through the door.
- **Raspberry Pi 3:** The system's brain, processing data from the infrared sensor and determining when to send reminders.
- **LED bar or speaker (optional):** Provides visual or auditory notifications in the home.

- **Mobile device connection:** Sends reminders and activity suggestions directly to the user's mobile device.

Physical/link layer communication technologies:

- **Wi-Fi:** Used to send the data collected by the sensor from the Raspberry Pi 3 to the server or directly to the user's mobile device.
- **Bluetooth (optional):** For direct communication with nearby devices such as phones or tablets if preferred over internet connectivity.

Application/data layer communication technologies:

- **HTTP/HTTPS:** For secure data transmission between the Raspberry Pi and the notification services.
- **MQTT (optional):** A lightweight messaging protocol for sending messages between IoT devices and servers, which could be useful for scaling the project.

Monitoring platform and data analysis:

- **Grafana or Thingspeak:** To visualize historical data, such as how much or how many times users have spent indoors, allowing for analysis and personalized recommendations.

Open data sources:

- **Weather forecast:** Integration with weather APIs to suggest outdoor activities when the weather is favorable.
 - **Local events:** Information about nearby community activities (could be sourced from event databases).
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Scrum:

Sprint 1:

By November 5th, we will have all the sensor functionality programmed.

Sprint 2:

By November 26th, we will have all the data uploaded to the internet.

Final delivery:

For the December delivery, we will have everything completed.

Business Model:

Get out Get coffe Business Model Canvas

Created by Jorge Clausen
and María Vivar

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
<ul style="list-style-type: none">• Sensor and hardware suppliers: For providing Raspberry Pi and infrared sensors.• Local coffee shops: Partnerships with cafes and pubs offering rewards to users.• Software developers: For the creation and maintenance of the mobile app.• Open data services: Providers of weather and local event information for personalized suggestions.• Psychologists: Mutual partnerships where both parties recommend each other's services to their respective users, promoting mental health and social activity.	<ul style="list-style-type: none">• IoT system development and maintenance: Maintaining and improving the device and app.• Partnership management: Creating and managing relationships with coffee shops and other businesses in the reward system.• User data management: Storing and processing user activity data securely.• Customer support: Resolving issues with installation and use of the system.	<ul style="list-style-type: none">• Encouraging social and physical activity: Motivates users to leave their homes and engage in social activities.• Reward system: Users accumulate points by going out and staying active, which they can redeem for free coffee at partnered establishments.• Personalized suggestions: Activities and reminders based on the weather, local events, or time spent indoors.	<ul style="list-style-type: none">• Interaction through the app: Users primarily interact via the mobile app, where they receive suggestions and monitor their activity.• Reward program: Personalized incentives that encourage social and physical activity.• Customer support: Support through email or chat to help with contacting someone or app usage.	<ul style="list-style-type: none">• Elderly people living alone or people with depression: Users who tend to stay home for long periods.• Remote workers: People working from home who need incentives to go out and move.• Family members or caregivers: People monitoring the well-being of their loved ones and wanting to ensure they maintain adequate social and physical activity.
	Key Resources		Channels	
	<p>Raspberry Pi and IoT sensors: Hardware components to track when users leave home.</p> <p>Mobile app software: Development and maintenance of the app to manage reminders and reward points.</p> <p>Partnerships with local coffee shops: Creating and maintaining agreements with businesses that are part of the reward system.</p> <p>Partnerships with psychologists: We recommend each other's services to our respective users.</p>		<ul style="list-style-type: none">• Mobile app: For receiving suggestions and tracking accumulated points.• Partnerships with local coffee shops: Cafes offering benefits, like free coffee, in exchange for accumulated points.• Social media: to promote the product.• Psychologist: to promote the product	
Cost Structure		Revenue Streams		
<ul style="list-style-type: none">• CAPEX: Investment in hardware (Raspberry Pi, sensors).• OPEX: Software maintenance, servers, and system updates.• Partnership costs: Agreements with businesses for rewards.• Marketing and user acquisition: Advertising and promotions to attract customers.		<ul style="list-style-type: none">• Sale of IoT devices: Direct sale of sensor kits.• Subscription: Premium services offering additional features (e.g., advanced suggestions, activity reports).• Agreements with coffee shops and businesses: Advertising and cross-promotions with partnered establishments.• Aggregated data: Collection of anonymous behavioral data for trend analysis.		