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Projects
(/projects)

Channels
(/channels)

Search

News
(/news)

Contests
(/contests)

Projects
Events
(/events)

Videos
(/videos)

+ (/projects/new)

5

1 (/users/stats)

(/newsletter/sign_up)

f (https://www.facebook.com

‹ **Back to Pervasive AI Developer Contest (/contests/amd2023/ideas)**

Tell us about what you're planning to build and your level of commitment

Because we have a limited supply of hardware, we want to make sure we send them to people who are committed to building meaningful projects.

Please only apply for free hardware if you plan on building and submitting a project. Participants who receive free hardware and do not submit a project will be flagged by our team and possibly ineligible for future giveaways (up to our discretion).

Title of your idea

CamAutoGUI: Harnessing Computer Vision for Camera-Based Computer Auto

76/140

What problem are you going to solve?

The CamAutoGUI project aims to solve accessibility issues by providing hands-free mouse control through computer vision. It enhances convenience, efficiency, and promotes gesture-based interaction in computing environments.

What are you going to build to solve this problem? How is it different from existing solutions? Why is it useful?

We are building a Python-based graphical user interface (GUI) application called "CamAutoGUI" that utilizes computer vision techniques to enable hands-free mouse control. This application allows users to control the mouse cursor on their computer screen using hand gestures captured by a webcam, eliminating the need for traditional mouse input devices.

Different from existing solutions that often require specialized hardware or expensive equipment, CamAutoGUI utilizes standard webcams commonly available in most laptops and computers, making it accessible to a broader range of users. It offers a more affordable and convenient alternative to traditional mouse control methods, particularly for individuals with physical disabilities or limitations.

CamAutoGUI is useful because it enhances accessibility by providing hands-free mouse control, enabling individuals with disabilities or mobility impairments to navigate and interact with their computers more comfortably and independently. It also promotes gesture-based interaction, which can improve user experience and efficiency in various computing tasks such as presentations, gaming, and multimedia editing. Overall, CamAutoGUI offers a practical and inclusive solution to address accessibility challenges and improve user interaction in computing environments.

How does your solution work? What are the main features? Please specify how you will use the AMD AI Hardware in your solution.

Frequently Asked Questions

What kind of idea is more likely to win free hardware?

We encourage creative ideas. For instance, pet feeders and home automation systems are very common nowadays and less creative. We also encourage realistic ideas. While solving world hunger is a great goal, it may not be realistic.

Do I have to submit a project entry if I receive free hardware?

Yes, all free hardware recipients must submit a project entry by the contest deadline. Free hardware recipients who do not submit a project entry will become ineligible to receive free hardware in future giveaways.

What happens if I receive free hardware and do not submit a project entry?

Participants who receive free hardware and do not submit a project may be ineligible for future giveaways unless the hardware is returned.

If you receive free hardware and become unable to submit a project, please contact us at help@hackster.io (mailto:help@hackster.io) and let us know as soon as possible. We may choose to arrange for the hardware to be shipped to another participant.

How many AMD AI Hardware are available?

Our solution, "CamAutoGUI," leverages computer vision techniques to enable hands-free mouse control. Here's how it works and its main features:
1) Computer Vision-based Hand Tracking: The system utilizes computer vision algorithms to track hand movements captured by a webcam in real-time.
2) Gesture Recognition: It recognizes predefined hand gestures as commands for controlling the mouse cursor on the computer screen.
3) Graphical User Interface (GUI): CamAutoGUI provides a user-friendly interface where users can calibrate gestures, define custom gestures, and adjust sensitivity settings.
4) Accessibility: It offers an accessible alternative to traditional mouse control methods, particularly beneficial for individuals with physical disabilities or limitations.
5) Affordability and Convenience: CamAutoGUI is designed to work with standard webcams commonly available in laptops and computers, making it an affordable and convenient solution compared to specialized hardware.

Regarding the use of AMD hardware in our solution:
1) GPU Acceleration: AMD GPUs can be utilized for parallel processing tasks in computer vision algorithms, enhancing the performance of hand tracking and gesture recognition.
2) OpenCL Support: AMD GPUs support OpenCL, a framework for parallel computing across CPUs and GPUs. We can leverage OpenCL to optimize our computer vision algorithms for AMD hardware, improving efficiency and speed.
3) Integration with AMD ROCm: We can integrate CamAutoGUI with AMD ROCm (Radeon Open Compute), an open-source platform for GPU-accelerated computing, to further enhance performance and compatibility with AMD hardware.

By leveraging AMD hardware, we can optimize the performance of CamAutoGUI, particularly in computationally intensive tasks such as real-time hand tracking and gesture recognition, providing users with a seamless and responsive hands-free mouse control experience.

List the hardware and software you will use to build this (in addition to the required hardware and/or software).

PC web cam or external web cam
Python
TensorFlow
Media Pipe
OpenCV
PyAutoGUI
AMD Ryzen AI processor
AMD Ryzen AI Software

Except for the AMD AI Hardware, do you already have the parts you need to build this project?

Yes

🔘 I have some parts

No

How many hours will you be able to spend on this project per week?

12

How many total hours do you estimate this will take you to build?

240

Tell us about yourself. What do you spend most of your time doing? What skills or experience do you have that will enable you to be successful in building this project?

700 AMD AI Hardwares are available. One device maximum per person.

How many ideas can I submit?

Each user is allowed to submit one idea.

Where should we ship the hardware if your idea is selected?

Add an address

What is your hardware quiz score?

I agree that if I am selected to receive free hardware, I will submit a project to the Pervasive AI Developer Contest contest by June 30, 2024 at 11:59 PM PDT.

Yes, I agree

No (Cannot submit if no)

If I am not able to submit for any reason, I will contact the contest admins at help@hackster.io (mailto:help@hackster.io) by June 15, 2024 in order to arrange a possible hardware return.

Yes, I agree

No (Cannot submit if no)

Submit idea   Save for later