Mastering Software & Hardware Project Management

Developing a camera

If I were to develop a camera system incorporating AI for facial recognition, it would be linked to a security database for purposes such as security assessment, criminal tracking, and overall security enhancement. The system could perform real-time facial recognition, emotion detection and analysis, and demographic estimation (age and gender). These outputs would be compared against a database to identify potential matches, leveraging deep-learning AI models for improved accuracy and adaptability.are it to a database until it finds a match. Using a deep-learning AI models.

Constraints

Legal regulations restrict the use of facial recognition on cameras due to privacy and liberty concerns. This means the system cannot indiscriminately scan every face in its field of view, requiring thoughtful design to comply with these restrictions.

Technological Considerations**

- Programming Languages: R, an emerging tool in AI development, known for its effectiveness in statistical analysis and modeling, could be a viable option. Python, due to its accessibility and extensive AI libraries, would be suitable for prototyping.

- Existing Technologies: Similar systems are already in use in countries like the UK and China. These systems resemble the "Big Brother" concept from George Orwell's 1984 and have faced significant criticism for potential infringements on civil liberties. However, they also offer perceived benefits, such as enhanced security and support for law enforcement.

(use of AI to determine pros and cons of such a project from the user's perspective)

Pros

- Enhanced Security: Reliable face recognition for access control or surveillance.
- Improved Photography: Features like auto-focus on faces, emotion detection, and face-driven filters enhance usability.
- Convenience: Hands-free operation through features like gesture or voice control.
- Personalization: Ability to customize settings based on detected users or preferences.
- Time-Saving: Automates tasks like tagging photos, sorting albums, or identifying familiar faces.

Cons

- Privacy Concerns: Potential misuse of facial data for tracking or surveillance.
- Cost: High-end technology could lead to increased product prices.
- False Positives/Negatives: Recognition errors can lead to frustration or security risks.
- Limited Adaptability: Challenges with recognizing diverse faces or handling poor lighting.
- Overdependence: Users may rely too much on automation, reducing control.

Turn Failure into success

Project: SportShield Project

People behavior

Weaknesses:

- Being discouraged easily
- frustration among teams
- lack of communication with the client
- misuse of the hardware, led to hardware issues

Strengths:

- Redefined the project scope
- Ended up communicating with the client effectively

What could have been done differently

We should have communicated our issues with the client as soon as we have encountered them. This would have helped us assessing and maybe finding solutions to the issue we have had during the project. Moreover, we should have stayed motivated and concentrated on the project's goal instead of being discouraged by our failure and problems encountered.

Next Time

I want to not get flooded by frustration and communicate with the client as soon as a problem is identified. I want to be clear with the client and improve my communication.

Risks

Unidentified Risks

- a team member leaving the school

- faulty working hardware
- team member not respecting deadlines
- lazy team member(s)
- members not reading documentations

Cost

Cost for such projects were never money. But necessarily a loss of time, personal resources. Leading to failures in the project.

What Could Have Been Done differently

A more thorough risk management and assessment definition and more preparation would have helped us in getting through theses risks with less impact. It takes time to define risks, and a short brainstorm session at the beginning of the project is sometimes not enough. Create strategies for mitigating risks.

What Do I Want To Apply Next Time

Create a more detailed and defined risk management document in which I define a risk mitigation plan and strategies to overcome them. And find as much risks as possible related to the project.