Assignment A2 – Engineering Ethics (Group Assignment)

This assignment has four parts:

1. Ethics involving traditional engineering projects.
2. Ethics involving projects where Artificial Intelligence plays a significant role.
3. Ethical issues that are related to your own project.
4. A PowerPoint (or any other presentation tool) Presentation covering items 1 to 3 above.

Part 1 – Ethics in Traditional engineering projects (25%)

Find one interesting project where ethical failure was the main cause of the disaster. Here is a collection of projects (<https://www.livescience.com/55619-engineering-disasters.html>). You can find many more on the Web.

Part 2 – Ethics involving projects where Artificial Intelligence plays a significant role (35%)

Artificial Intelligence (AI) is rapidly proliferating into every field of endeavor. Unless these systems are designed to ensure the safety and integrity and the recommendations, they make are ethical, the society will be in grave danger. It is important for every practitioner to be confident that the systems they depend on can be trusted.

This assignment is designed to ensure all the graduating seniors are exposed to these systems and can analyze them to ensure that they can rely on their recommendation.

The following references provide deep insights into this subject. Please consult them before working on this assignment.

1. The AI Bill of Rights - <https://www.whitehouse.gov/ostp/ai-bill-of-rights/>
2. IEEE - <https://ieeexplore.ieee.org/document/9844014>
3. IEEE AI Ethics Resources - <https://innovationatwork.ieee.org/understanding-the-ethics-of-artificial-intelligence/>

This assignment consists of the following:

1. A brief description of an AI system in any domain
2. Ethical and moral issues relevant to that domain
3. An analysis of that system to see if it is compliant with the “AI Bill of Rights” (<https://www.whitehouse.gov/ostp/ai-bill-of-rights/>)
4. References including URLs of relevant videos.

Partial List of Domains:

1. Healthcare
2. Education
3. Smart Electric Grid
4. Transportation – Autonomous Vehicles
5. News Media
6. Monitoring Society – Location Tracking; Facial Recognition, etc.
7. Privacy
8. Finance, Investment, etc.
9. Chatbots
10. Robotics

Suggested outline for your paper (about seven pages not including the PowerPoint Presentation):

For each part, organize your report as follows:

1. Describe the project succinctly and clearly identify the ethical violation.
2. Identify the ethical cannon and the rule of practice that has been violated from the code of ethics as stated in at least two organizations (IEEE, ACM, ISPE, ABET).
3. Explain the actions you could have taken to avoid the ethical violation.
4. Provide at least three important references related to the project you selected.

You may use text generating systems such as ChatGPT, but that text must be clearly identified. If you edit that text, make sure you highlight that edited text.

Part 3 - Ethical issues that are related to your own project (15%)

Part 4 - Presentation – Your presentation should cover all three items listed in your report (25%)

Your group should make presentation in class using appropriate visuals.