ITEC 65 – OPEN SOURCE AND TECHNOLOGY
Case study

Name: JASPER JOHN D DREO	**Year and Section: BSIT 2-5**
Date:	**Instructor: Christian Jed Quejado**

In an increasingly interconnected world, hardware innovation is no longer exclusive to large corporations or well-funded institutions. A growing community of engineers, makers, and hobbyists has embraced the open source hardware (OSHW) movement—a paradigm that allows for the free sharing, modification, and distribution of physical designs. This case study explores the evolution, implications, and applications of OSHW, including its legal frameworks, community initiatives, and real-world challenges.

The concept of open source hardware gained traction in the late 1990s, inspired by the success of open source software. With early initiatives like Bruce Perens' Open Hardware Certification Program and projects such as Open Design Circuits and the Open Graphics Project, the foundation was laid for a collaborative approach to hardware development.

Unlike traditional proprietary hardware, open source hardware comes with complete documentation—schematics, layout files, bills of materials, and even production instructions—under licenses that allow modification and redistribution. Organizations like CERN and OSHWA (Open Source Hardware Association) have formalized and promoted OSHW through licenses and community support.

Answer the following question:

1. What is the primary difference between open source hardware and traditional proprietary hardware in terms of user rights and accessibility? The main difference is open source hardware lets anyone use, change, and share the design. Proprietary hardware doesn't allow that.
2. In what ways does open source hardware encourage innovation and collaboration within the academic and maker communities? It helps people work together by sharing ideas and improving each other's work, especially in schools and hobby groups.
3. Discuss the potential risks for creators who release their hardware designs under open licenses. How might they be affected commercially or legally? Creators might lose money if others sell their work or use it without giving credit. There could also be legal issues.

4. Why proper documentation is considered essential in open source hardware projects, and what might happen if it's incomplete or missing? Good documentation is important so others can understand and build the project. If it's missing, people might get confused or make mistakes.
5. Compare the TAPR OHL and CERN OHL licenses. How do they support or differ in protecting the intentions of open source hardware developers? TAPR OHL and CERN OHL both protect open hardware, but in slightly different ways. They make sure people follow the rules when using the designs.
6. Considering that open hardware projects involve physical components, what strategies can developers use to balance openness with sustainability and cost recovery? To make sure their projects work, developers should give clear instructions, use easy-to-find parts, and ask for feedback from the community.
7. How can educational institutions like universities or colleges benefit from adopting open source hardware in their curriculum and research activities? Schools and universities can save money and give students real experience. It also helps them do more research by sharing and improving designs.