**DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY**

**SCHOOL OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**BACHELOR OF SCIENCE IN BUSINESS INFORMATION TECHNOLOGY**

**UNIT: INTERNET OF THINGS**

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**Project Name: Smart Combine Harvester(wheat)**

Background Study

The Smart Combine Harvester project aims to revolutionize the agriculture industry by introducing a new level of precision and efficiency to the harvesting process through the use of interne of Things technology. Traditional harvesting methods are labour intensive and time consuming, and often result in inefficiencies ad waste.

The Smart Combine Harvester integrates sensors, data analytics and machine learning algorithms to optimize the harvesting process, enabling farmers to make informed decisions in real-time about when to harvest and how much to harvest, ultimately resulting in increased crop yields and reduced costs. The project has the potential to not only to improve the profitability of farmers but also contribute to sustainable agriculture practices by reducing environmental impact

**Objectives**

1. By using GPS devices track location of the combine harvester and monitor its speed and efficiency, farmers can optimize their routes and reduce consumption, saving time and money.
2. IOT sensors can be used to monitor the condition of the key components of the combine harvester, which can help farmers schedule preventive maintenance and avoid costly breakdowns during harvest season.
3. Using solar energy to power the battery that will power the IOT devices in use.
4. Using the humidity monitor to monitor the condition of the wheat to estimate the best harvesting period.

**Requirements for the Smart Combine Harvester**

* Sensors e.g GPS sensors, temperature sensors, humidity sensors, moisture sensors, light sensors.
* Actuators e.g motors for controlling the speed of the harvester and valves for regulating water flow.
* Connectivity i.e use of wireless technologies such as wi-fi, Bluetooth , or cellular networks.
* Cloud Platform which will provide real-time feedback and analysis.
* Machine learning Algorithms that will help to identify patterns and trends.
* Power source that is batteries, solar powers or generators.