**Name : Haneefah Adejumo Eyitayo**

**Class. : JSS 1**

**School: Pathfinders Islamic College, Unity, Ilorin.**

**IF I COULD INVENT SOMETHING NEW**

If I could invent something new, it would be a robotic machine for road construction. The road construction sector is a vital component of infrastructure; it will undergo a significant transformation by advancement in robotics and automation.

Construction of roads involves some of the following processes:

**Cut and fill**: which involves mass transport of earth material within and outside the immediate road construction location.

**Grading**: the task that involves the sieving and breakdown of small rocks and soil pieces to the desired maximum size as well as the creation of exact profiles and sections.

**Base preparation and placement**: which consists of the placement of gravel base on the graded soil.

Road construction also involves surface material placement.

All these operations and others can be done effectively with the use of a robotic machine.

Robotics in road construction will bring unprecedented precision to tasks traditionally prone to human error. These include everything from laying asphalt to intricate road markings, ensuring each project meets the highest standards of quality and accuracy.

Robotics can help in addressing the issues of overruns cost and material wastage, promoting more efficient use of resources and reducing the environmental impact of construction activities.

Robots work continuously, free from the constraints of human work schedules.

This capability allows faster completion of road construction projects, keeping pace with tight deadlines and reducing disruptions to traffic and local communities.

Robotics reduces the risk of accidents and injuries, particularly in high risk tasks, like laying asphalt or working near traffic.

Robotics machines needed in road construction include:

**Autonomous paving and marking machines:** these machines transform the way roads are built and maintained, from precise asphalt laying to accurate road markings, autonomous machines ensure consistency and quality, even over extensive road networks.

**3D printing in road construction:** traditional road construction methods can be resource intensive and generate a significant amount of waste. In contrast, 3D printing can be more sustainable by reducing material waste and energy consumption. It allows for the precise deposition of construction materials, minimizing excess usage. 3D printing also ensures speed, accuracy and efficiency.

**Wearable robotic devices for work support:** exoskeletons and similar wearable robotic devices assist workers in physically demanding tasks, reducing fatigue and the risk of injury. This technology is especially beneficial for repetitive tasks everyday in road construction.

**Automated heavy machines for excavation and grading:** these machines improve the accuracy of foundational work and expedite the preparation of construction sites.

**Drones for surveying and monitoring:** these play a crucial role in road construction by providing real time aerial surveys, monitoring progress and ensuring that the projects adhere to planned specification.

In conclusion, road construction through this means of technology is safer, faster and effective, setting the course for a future where infrastructure development keeps pace with the rapidly changing needs of the society.