Smart pole: to respond/alert when there is a need.

Good morning, and a warm welcome to everyone gathered here. My name is [Your Name], we are here from GPT Warangal. I am excited to share with you a project that our team has been diligently working on—the Smart Pole initiative. In a world where safety and connectivity stand as top priorities, our project aims to seamlessly integrate technology into urban infrastructure, contributing to the well-being of our community.

In our day-to-day lives, we often come across news highlighting various issues such as accidents, women harassment, abuse, and other emergencies that demand immediate attention. However, relying on traditional methods like emergency toll-free numbers can lead to significant delays in reaction time, investigation, and taking necessary actions in certain cases.

To address this challenge and provide quick justice to the victims, we have developed a device designed to promptly alert officials about incidents, facilitating quick responses and aiding authorities to pursuit the justice.

The model we have created to demonstrate the functionality of this device is simple, straightforward yet powerful. It is controlled by a button, serving as the trigger to activate the device. Upon pressing the button, the device activates a bright light and a large buzzer to alert those nearby. Simultaneously, a well-crafted message is generated, notifying the relevant authorities about the incident's occurrence, including the precise location. This is made possible through the integration of GPS and GSM modules.

To manage all these functions seamlessly, we have used an Arduino Uno board, serving as the control center for the entire unit.

But this model contains some limitations that are to be considered to implement it in real-world They are:

* By using this device, we can contact the authorities but there is no possibility to get the conformation of the alert from the authorities to the user.
* Next the device may not be helpful when the device is not in the range of the incident or if it is not activated when available.
* And it lacks to detect the false alarms, as if someone activated the device without any intention to alert, or if there is no need for the authorities to respond for an incident that occurred, we cannot detect it with the current model.
* And it cannot be helpful if the public does not have awareness about the device.

To overcome these limitations, we are considering several future upgrades to enhance the device for real-world deployment. Those upgrades include:

* We can add an input system to the device to let the user give more detailed information through the message that will be sent, from within the available options that are provided to make it brief, or they can add any new options with that we can act accordingly.
* Next, we can add an integrated camera to the device or connect our device with the nearest surveillance camera, the recorded data can be helpful as a proof of the incident to catch the criminals and to detect the false alerts.
* Next, we can use Image Processing AI to detect the incident and raise the alert without the button input by using the recorded data.
* Next, we can use solar panel for the power supply of the device and camera.

To understand the functionality of the device clearly, let me explain a scenario where it can be helpful to the safety of the communities.

For our scenario, let us consider locations like highways or outskirts of the cities, nowadays as we can regularly see news about multiple accidents due to the fog as now it is winter season. But in cities like Faridabad, Ghaziabad, New-Delhi, etc.... we cannot travel care-free because the smoke in the air will cover the vehicles’ path completely throughout the year. So, in these conditions if an accident occurs, there may be a big chance of multiple causalities due to heavy traffic. Recent footage of the accident near Delhi can be seen here.

That is where our device come in handy. If we use our device to alert about the incident, by the help of the buzzer and the light we can warn the vehicles that are coming to the incident spot and if it is a highway, we can send the message to the tollgates to notify the vehicles that are passing. By that we can control the traffic smoothly and avoid the chance of further accidents. By that medical department can work freely if there is any emergency.

In the similar location if we consider the case of Desha where a woman has murdered after a gang rape, here charred body was found at an underpass near Chattanpally, the murderers are caught using the CCTV footage, if we can use our device and integrate it with AI to detect this kind of incidents, we can alert the officials and pursue the justice to the victims on time and can alert the nearby people instantaneously.

In these ways our device can be helpful in real-world, to detect any emergencies, and to alert the officials and nearby people to make our communities safe and secure. By that I am concluding our time, thank you for the opportunity for allowing us to present our project here, Thank You.