TITLE OF THE INVENTION:

Prevention of accidents of animals and humans caused by track based locomotives by using sensors and IoT.

INTRODUCTION:

A report submitted by the Hindu quoted that TSB received 1,232 reports of rail transportation occurrences in 2021 (1,038 accidents and 194 incidents), including 60 fatalities. The 1,038 accidents represent a 5% increase and among them nearly 45% accidents occur due to animals crossing the tracks. This creates a huge impact on Indian budgetary every year.

This invention will reduce the accidents and hence reduce the budget that is allotted for the recovery of such events. In this project the sensors that is attached to the train keeps emitting ultrasonic waves, whenever any object like any train in opposite direction or any animals or human beings crossing the tracks, these waves reflect back and hence automatic brake is applied which prevent train collisions and any accidents.

WORKING:

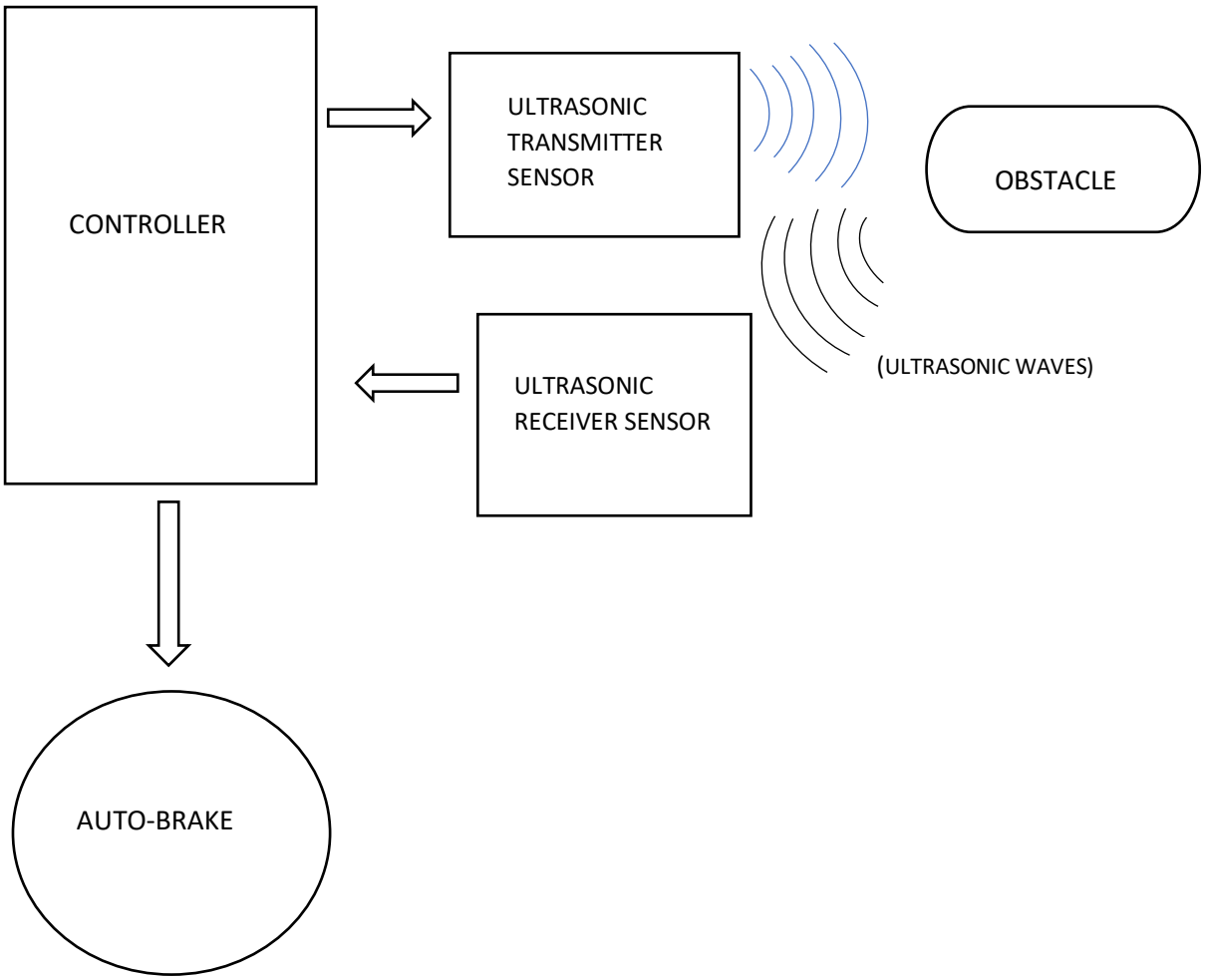
Autonomous lighting system power on lights while moving is dark zones sensing light density and vice versa. Ultrasonic wave transmitted through rail identifies any discontinuity in the track, manmade obstacles on the track and any movement of train in the opposite direction on the same track; will measure distance of the fault through variation of intensity of the wave there by automatically switching the power supply off. Restring the power only can be done through central control room after analyzing the situation. Auto piloting is envisaged in metro rails as it is well defined.

Here the sensors will be attached to the top of train facing straight covering a radius of 90 degrees. This will keep emitting waves, whenever it strikes any obstacle, it reaches back to the receiver. The intensity if the wave is calculated by the processor and the brake is applied automatically. Through IoT the message will reach the nearest station which will contain the train number and the location where it is at present.

SPECIAL FEATURE:

Whenever the train reaches the tunnel, the lights in the train will automatically be turned on by the help of light sensing sensors. This will prevent the robbery in train when the train travels in any tunnel.

BLODK DIAGRAM:



COST FOR DESIGN AND IMPLEMENTATION:

S.NO	COMPONENTS	COST
1.	AUDINO	8000/-
2.	ULTRASONIC SENSORS	1000/-
4.	LED	400/-
5.	CONNECTING WIRES	100/-
6.	BATTERY	2000/-
	TOTAL	11,500/-

ADVANTAGES:

This project will reduce the budget allocated for train accidents and its recovery. This will help our country to allocate these shares for other sectors which will help in the development of our country. This will also save animals from train accident and will save the wild animals while crossing the tracks.

This will also save passengers from robbery due to automatic lighting system and will ensure the safety of the passengers. Hence India will soon grow up as the best nation for providing the safest track based transportation.