INTELLIGENT ARDUINO METHOD TO AVOID TRAIN ACCIDENT

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Abstract

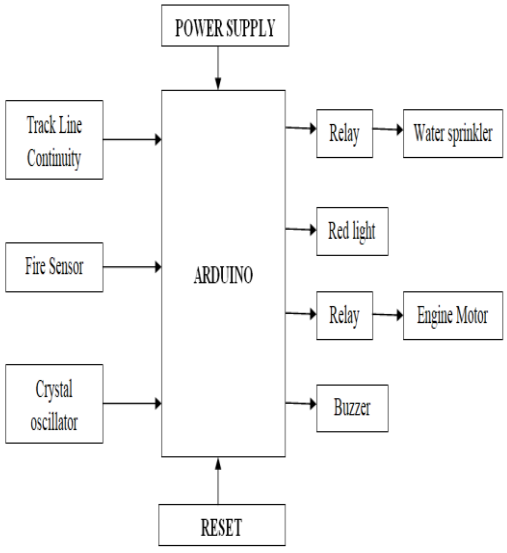
In this project Intelligent arduino method to avoid train accident is implemented. This project will build up a model of an entryway at the level intersection that runs.The entire system is controlled by the ardunio microcontroller.Intially when the train is arriving then track line continuity activates and red light will be ON and engine motor will be OFF.Simillarly when fire sensor activates then water sprinkler will be ON , engine motor will be OFF and buzzer indication will be obtained.compared to others, proposed system gives effective results.

KEYWORDS:Arduino Microcontroller,Buzzer,Fire sensor,Water sprinkler,Track line continuity

1.Introduction: Now a days, India is the country which having world‟s largest railway network. Over hundreds of railways running on track every day. As we know that it is surely impossible to stop, the running train at instant is some critical situation or emergency arises. Train accidents having serious repercussion in terms of loss of human life, injury, damage to Railway property. These consequential train accidents - include Collision, Derailments, Fire in Trains, and Collisions of trains at Level Crossings. Our country is a progressive country.

2.Working Principle: The below diagram shows the architecture of proposed system. The entire system is controlled by the Arduino microcontroller. Initially when the train is arriving then traffic line continuity activates and red light will be on and engine motor will be off. Similarly, when fire sensor activates then water sprinkler will be on, engine motor will be off and buzzer indication will be obtained.

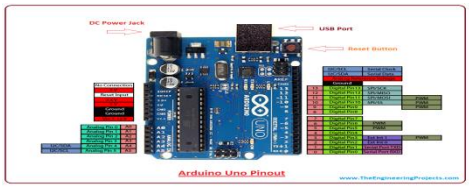
3.BLOCK DIAGRAM:



4.Hardware Requirements:

ARDUINO: The Arduino Uno is a microcontroller board based on the

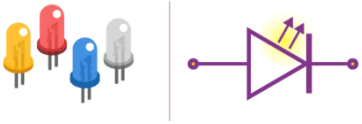
ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button.



FIRE SENSOR : A fire detector works by detecting smoke and/or heat. These devices respond to the presence of smoke or extremely high temperatures that are present with a fire. After the device has been activated, it will send a signal to the alarm system to perform the programmed response for that zone.

ENGINE MOTOR: An electric motor is an electrical machine that converts electrical energy into mechanical energy. Most electric motors operate through the interaction between the motor's magnetic field and electric current in a wire winding to generate force in the form of torque applied on the motor's shaft.

LED: It is a semiconductor diode that emits light when a voltage is applied to it and that is used especially in electronic devices (as for an indicator light).As the voltage across the diode increases the linearity decreases.



CRYSTAL OSCILLATOR: A crystal oscillator is an electronic oscillator circuit that uses a piezoelectric crystal as a frequency selective element. The oscillator frequency is often used to keep track of time, as in quartz wristwatches, to provide a stable clock signal for digital integrated circuits.To stabilize frequencies for radio transmitters and receivers.

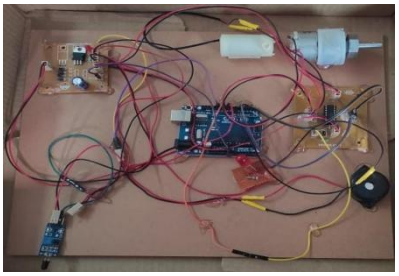
BUZZER: A buzzer or beeper is an audio signalling system or device, which may be mechanical, electromechanical or piezoelectric.

RELAY: The input of 1 channel 5V 10A relay module are isolated to protect any delicate control circuitry.High impedance controller pin.Convenient installation and fixation.Pull-down circuit for the avoidance of malfunction.

5.Software Requirements:

- 1.Arduino IDE: The Arduino Integrated Development Environment is a cross-platform application that is written in function from C and C++. It is used to write and upload programs to Arduino compatible boards, but also , with the help of third party cores, other vender development boards.

6. Result:



7.Conclusion:

Hence this project Design And Development Of intelligent train engine system for real time applications was implemented.In future we can extend this project by using raspberry pi and machine learning techniques.

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