**1. INTRODUCTION:-**

Automatic railway gate control system is implemented to prevent accidents of the railway track and traction system at the railway level crossings. Now-a-days, many accidents take place at the railway level crossing (both manned and unmanned) due to uneven crossings, even when the gate is about to close. In general, a railway gate is normally operated by a gate keeper as the person receives the information about the arrival of the train.

Railway safety is the most crucial aspect of railways all over the world. This is the cheapest mode of transportation all over the world, and therefore, accidents are bound to happen due to carelessness in manual operations. Therefore, an automatic railway crossing gate controller is used to prevent accidents, especially at unmanned level crossings to provide much needed safety. Such efficient controllers are mostly used in remote areas that often lack the services of a line man at the crossing levels.

In many countries, level crossing on less important roads (e.g. other than National Highways) and railway line are “open” & “ uncontrolled” because of warning lights, or, bells to warn the vehicles, cattle(s) and pedestrians about the approaching trains. Level crossing represents a safety concern for many accidents which have occurred due to failure to notice, or, to obey the warning.

1. **Description of solar panel:-**

Solar panels are those devices which are used to absorb the sun's rays and convert them into electricity or heat. A solar panel is actually a collection of solar (or, photovoltaic) cells, which can be used to generate electricity through photovoltaic effect. These cells are arranged in a grid-like pattern on the surface of solar panels. Thus, it may also be described as a set of photovoltaic modules, mounted on a structure supporting it. A photovoltaic (PV) module is a packaged and connected assembly of 6x10 solar cells.

Most solar panels are made up using crystalline silicon solar cells. Installation of solar panels in homes helps in combating the harmful emissions of greenhouse gases and thus helps reduce global warming. Solar panels do not lead to any form of pollution and are clean. They also decrease our reliance on fossil fuels (which are limited) and traditional power sources. These days, solar panels are used in wide-ranging electronic equipments like calculators, which work as long as sunlight is available.

However, the only major drawback of solar panels is that they are quite costly. Also, solar panels are installed outdoors as they need sunlight to get charged.

**3. REVIEW OF EXISTING RELEVENT LITERATURE:-**

3.1 WORKING OF GATE CONTROL SYSTEM

When foreside receiver gets activated, the gate motor is turned on in one direction and the gate is closed and will be closed until the train crosses the gate and reaches after side sensors. When aft side receiver gets activated motor turns in opposite direction and gate opens and motor stops. Buzzer will immediately sound at the fore side receiver activation and gate will close after 5 seconds, thus giving time to driver(s) to clear gate area in order to avoid trapping between the gates and once the train has crossed, the sound will be stopped.

3.2 AUTOMATIC RAILWAY GATE CONTROL

A site of level crossing generally occurs where a railway line is intersected by a road, or, path on one level, without recourse to a bridge, or, tunnel. It is a type of at-grade intersection. The term also applies when a light rail line with separate right-or-way, or, reserved track crosses a road crossing, railroad crossing, road through railroad, train crossing, or, gate crossing accidents in the level crossing are increasing day by day. Negligence of train drivers and gatekeeper is the main reason of this accident. No fruitful steps have been taken so far in these areas. So this system is designed to help out the railway department. It deals with intelligence of train engine with automatic gate controlling to avoid accidents at level crossings. The main concept of the system is that, depending on arrival or departure of the train near level crossing, the crossing gate will close or open automatically with displaying proper signal like Red or Green signal. That means when the train approaching near level crossing, the crossing gate will close and showing Green signal (International Journal of Science and Research (IJSR) ISSN (Online) : 2319-7064 , Kawshik Shikder).

**4. OBJECTIVE:-**

Provides an automatic railway gate at a level crossing which will replace the gates operated by the gateman for:

* Reduction of time for closing and opening the gate.
* Higher reliability as it is not subjected to manual errors.
* Provide safely to the road users by reducing the accidents.

The gate is closed automatically whenever the train comes and is opened after the train leaves the railway-road crossing.

**5. METHODOLOGY:-**

The proposed project is designed using 8051 microcontroller to avoid railway accidents those are taking places, especially at unmanned railway gates. This proposed project utilizes two powerful IR transmitters and two receivers; one pair of transmitter and receiver is fixed at upside (from where the train comes) at a level higher than a human being in an exact alignment and similarly the other pair is fixed at down side of the train direction. Sensor activation time is adjusted by calculating the time taken at a certain speed to cross at least one compartment of standard minimum size of the Indian railway.

We have considered 5 seconds for this proposed project. Sensors are fixed at 1km on both sides of the gate. We call the sensor along the train direction as ‘foreside sensor’ and the other as ‘after side sensor’. When foreside receiver gets activated, the gate motor is turned on in one direction and the gate is closed and stays closed until the train crosses the gate and reaches after side sensors. When aft side receiver gets activated motor turns in opposite direction and gate opens and motor stops. Buzzer will immediately sound at the fore side receiver activation and gate will close after 5 seconds, thus giving time to drivers to clear gate area in order to avoid trapping between the gates and stop sound after the train has crossed.

**6. TIME LINE:-**

a. Discussion about the idea: 22nd of July, 2017 to 27th of July,

2017.

b. Review of literature: 28th of July, 2017 to 7th of August, 2017.

c. Registration: 8th of August, 2017.

d. Acceptance of registration: 12th of August, 2017.

e. Procurement of the hardware components: 13th of August, 2017 to

17th of August, 2017.

f. Testing of the components: 18th of August, 2017 to 19th of August,

2017.

g. Rig up of circuit: 20th of August, 2017 to 23rd of August, 2017.

h. Testing of circuit: 24th of August, 2017 to 28th of August, 2017.

i. Synopsis Writing: 29th of August, 2017 to 3rd of August, 2017.

j. Synopsis submission for correction(s): 4th of August, 2017.

k. Final submission of synopsis: 14th of September, 2017.

**7. REFERENCES:-**

a. The 8051 microcontroller and embedded system by

“Muhammad Ali Mazidi.”

b. Slide share-Automated system.

c. Tutorial point.