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Automatic Mobile Railway Bridge

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***Abstract:--* This project is used for automatically close or open the mobile platforms in between the track trains. Normally the mobile platform connects the two platforms through which the passenger can walk on the platform to reach on the next platform The main importance of the project is to avoid accidents mainly caused by crossing the railway track to go to other platform also makes physhically disabled persons to also cross the platform easier. Railway bridge damage status is monitored by the sensor and transfer through wireless modules. For easy surveying and with less delay the information can be send to the authority.**

Key Words: Railway track, bridge, platform, WILD sensor, signal light, motor.

1. INTRODUCTION

The Primary objective of Automatic Railway Bridge System is to help the physically Challenged Passenger to move from one Platform to another. Crossing the railway track inside the railway station is very difficult. But it is quite difficult to the handicapped and aged persons to cross the railway track without the help of others. In this paper the agents make use of a set of resources - train characteristics, driving rules and information about other trains - to generate their action policy. The proposed system uses the train time for opening and closing of bridges. It also confirms the presence of the train using a sensor which is placed at a certain distance away from the platform. It is very difficult for the elderly persons or handicapped persons to use the bridge The opening and closing of the mobile bridge is directed by the microcontroller with the help of stepper motor The microcontroller will sense the presence of train by using sensor Mainly the tracking of a train is sensed by sensor , this is used for automatically close/open the mobile platform.

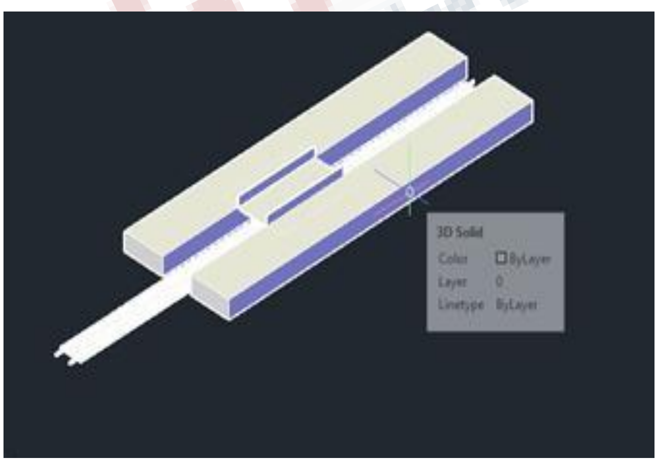

Fig 1: CAD Model of automatic railway bridge

2. OBJECTIVES OF THE PROJECT

The main objective of this project is to provide the multi sensor railway track geometry surveying system.the main importance of the project is to avoid the accidents mainly caused by crossing the railway track to go to other platform also makes physhically disabled persons to also cross the platform easier. It is very difficult for the elderly persons or handicapped persons to use the bridge The opening and closing of the mobile bridge is directed by the microcontroller with the help of stepper motor. The microcontroller will sense the presence of train by using sensor Mainly the tracking of a train is sensed by sensor , this is used for automatically close/open the mobile platform.

3. METHODOLOGY OF THE PROJECT

The automatic mobile railway bridge mainly works on
• The detection of the train to the platform
• The detection of passengers on the mobile bridge
• The instruction given to the passengers on the mobile bridge
• Movement of the mobile bridge this is done with the help of stepper motor and microcontroller.
• Train detection is done by the WILD SENSORS (weight impact Load detector) Located at the starting of the platform and the end of the platform

4. SPECIFICATIONS OF THE DYNAMO

DC MOTOR WITH GEARED:
- 100RPM speed 12v DC motors with gearbox
- 3000RPM base motor
- 6mm shaft diameter with internal hole
- 125gm weight
- 1.2kgcm torque
- No-load current=60 mA(max),

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- Load current=300 Ma(max)

Fig 2: Dc motor with Gear

4.1 BATTERY

LEAD OXIDE RECHARGABLE
OUTPUT 12 VOLT
CURRENT 18 AH

Fig 3: Battery

5. CALCULATIONS

• Distance from stopping point as reference = 100 m
• Time taken to cover the distance = 12s
• Speed of the train = 8.33m/s
• Arrival rate of the train to the station per hour: 3-4 trains
• Dwell time of the train in the station: Minimum (5min) maximum (45 min)
• Train track guage used : broad guage = greater than 1435mm lesser than 1720mm
• meter guage= 1000mm
• Narrow guage= less than1435mm
• Standard guage = 1435mm
• Speed of the train near station = 10-15 m/s

6.CONCLUSION

Thus the tracking of train is sensed continuously , which automatically close/open the mobile platform The system can be modified as fully automated instead of climbing the staircase.This efficient method will be more compact for reaching the particular destination at exact time and also for crossing the suitable platforms. This mobile bridge would reduce the area of the platform It would be more cost effective to construct rather than the huge railway bridges in the platform

The aim of this paper was to develop a system that could help the disabled person to cross the railway platform in far easy manner. The main contributions this study has made were the establishment of driving rules to allow trains to travel economically while giving priority to safety; the inclusion of additional trains travelling in the same direction at a safe distance apart. This method helps in reducing the time and area requirement.

Fig 5: Final fabricated model

7. SCOPE FOR FUTURE WORK

• The power supply for the motor operation and signal light is a disadvantage. It can be avoided by a battery charged by means of a solar cell.
• The obstacle detection part can be implemented using fuzzy logic. As it thinks in different angles, the system works still more efficiently.
• In this project, we are using WILD sensor for detecting the cracks and obstacles in track.
• In future, we will also using the cctv system with IP based camera for monitoring the visual videos captured from the track
• It will also increases the security for the both rails and passengers from terrorism,crime.

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