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Automated Guided Vehicle for Library Purpose

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ABSTRACT: The automatic guided vehicle saves the human time and save the human's work. In our project the line strip is placed in a ground surface the AGV is placed above the strip. By sensing the strip route the AGV attains its destination, where the path ends.

KEYWORDS: Obstacles detecting sensor, DCmotor.

I. INTRODUCTION

A line follower robot is basically a robot designed to follow a 'line' or path already pre determined by the user. This line or path may be as simple as a physical white line on the floor or as complex path marking schemes e.g. embedded lines, magnetic markers and laser guide markers. In order to detect these specific markers or 'lines', various sensing schemes can be employed. These schemes may vary from simple low cost line sensing circuit to expansive vision systems. The choice of these schemes would be dependent upon the sensing accuracy and flexibility required. From the industrial point of view, line following robot has been implemented in semi to fully autonomous plants. In this environment, these robots functions as materials carrier to deliver products from one manufacturing point to another where rail, conveyor and gantry solutions are not possible. Apart from line following capabilities, these robots should also have the capability to navigate junctions and decide on which junction to turn and which junction ignore. This would require the robot to have 90 degree turn and also junction counting capabilities. To add on to the complexity of the problem, sensor positioning also plays a role in optimizing the robots performance for the tasks mentioned earlier.

II. LITERATURE REVIEW

In recent years a great deal of time and effort has been spent of developing systems to enable an autonomous robot to follow a marked path using a vision system. Not surprisingly, the majority of this research has been towards modifying, or designing from scratch, a full-sized road vehicle so that it can drive on ordinary roads without human supervision. Due to the large amount of space available in an ordinary road vehicle, high performance computers can be used to perform complex image processing and, typically, to maintain a mathematical model of the vehicle and the environment. Research into autonomous driving using smaller robots typically follows one of two approaches. In the first approach a mathematical model of the vehicle and its surroundings is generated, tested in simulation, and then applied to a robot built specifically for the purpose. In the second approach a combination of a visual serving system and a kinematic model is used, again the robot is typically designed around the solution technique. Due to the size of these robots, the processing resources available are quite limited so simpler models and techniques, such as visual serving, are used to reduce the processing load.

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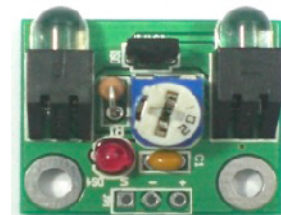
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2.1 Autonomous Robots

Autonomous robots are independent of any controller and can act on their own. The robot is programmed to respond in a particular way to an outside stimulus. The bump-and-go robot is a good example. This robot uses bumper sensors to detect obstacle. When the robot is turned on, it moves in a straight direction and when it hits an obstacle, the crash triggers its bumper sensor. The robot gives a programming instruction that asks the robot to back up, turn to the right direction and move forward. This is its response to every bump. In this way, the robot can change direction every time, it encounters an obstacle. A more elaborate version of the same idea is used by more advanced robots. Robotics create new sensor systems and algorithms to make robots more perceptive and smarter. Today, robots are able to effectively navigate a variety of environments. Obstacle avoidance can be implemented as a reactive control law whereas path planning involves the pre-computation of an obstacle-free path which a controller will then guide a robot along. Some mobile robots also use various ultrasound sensors to see obstacles or infrared. These sensors work in a similar fashion to animal echolocation. The robot sends out a beam of infrared light or a sound signal. It then detects the reflection of the signal. The robot locates this distance to the obstacles depending on how long it takes the signal to bounce back. Some advanced robots also use stereo vision. Two cameras provide robots with depth perception. Image recognition software then gives them the ability to locate, classify various objects. Robots also use smell and sound sensors to gain knowledge about its surroundings

S.no	Components
1	Infrared sensor
2	Dc motor
3	Audreno board
4	Rellay board
5	Battery
6	Potentio meter

PICTURES OF MAINLY COMPONENTS USED



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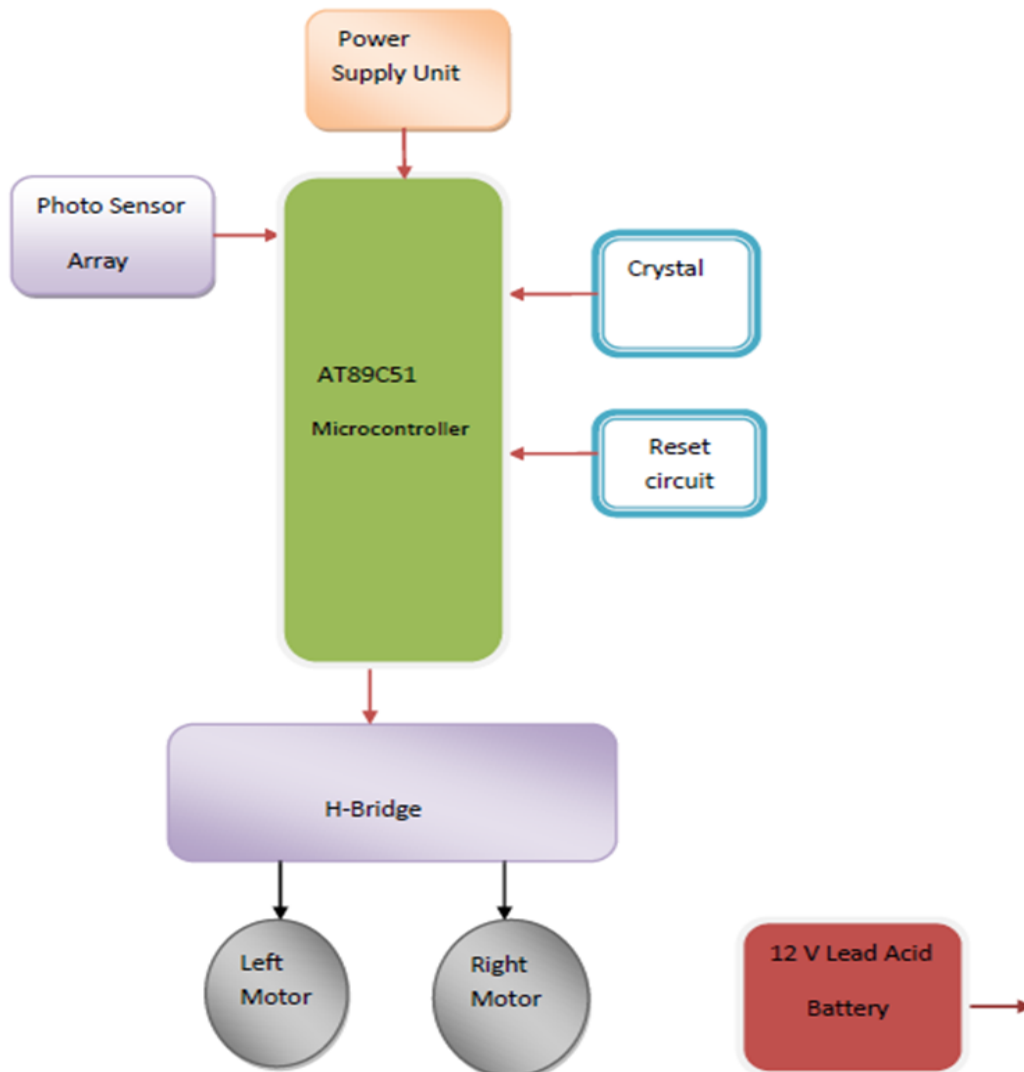
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Fig(6.1 &): construction



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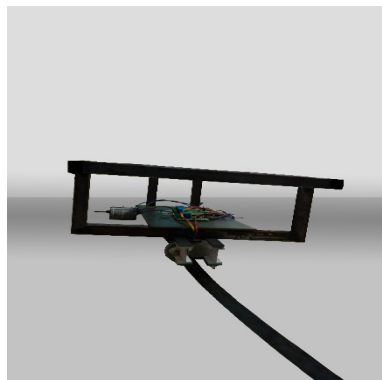
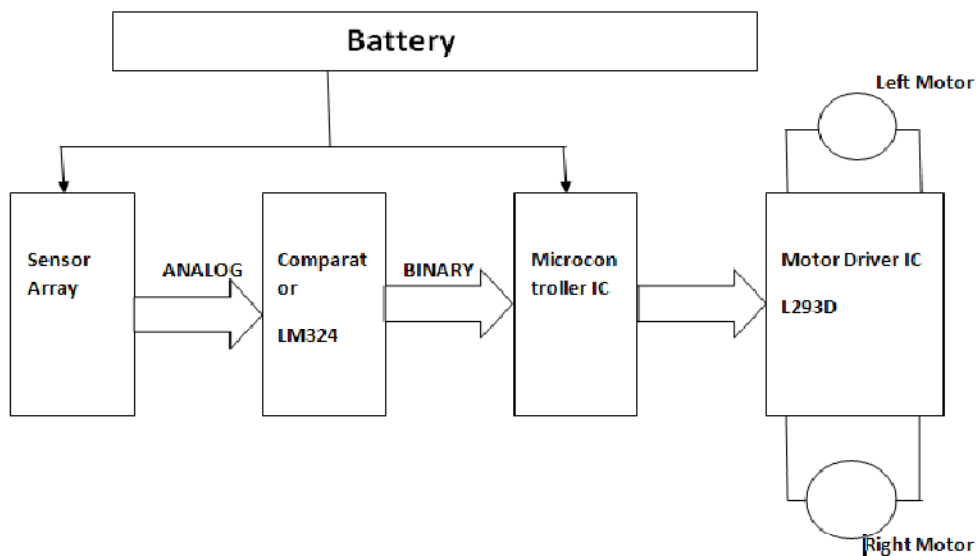
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III. WORKING PRINCIPLE

The line following robot is one of the self-operating robots. That detects and follows a line drawn on the area. The line is indicated by white line on a black surface or black line on a white surface. This system must be sense by the line. This application is depends upon the sensors. Here we are using two sensors for path detection purpose. That is proximity sensor and IR sensor. The proximity sensor used for path detection and IR sensor used for obstacle detection. These sensors mounted at front end of the robot. The microcontroller is an intelligent device the whole circuit is controlled by the microcontroller

FUTURE SCOPE

Software control of the line type (dark or light) to make automatic detection possible. “Obdtacles detecting sensors” to avoid physical obstacles and continue on the line. Distance sensing and position logging & transmission.



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IV. CONCLUSION

The main motto of our project is about to reduce the time consuming of transportation. The simple construction work is enough to make this. The human physical work is to be reduced and the time is also saved.

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