Safety Sensors (AGV)

REPORT SUBTITLE

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# Introduction

As a class, we are machining an automated guided vehicle. This vehicle has to complete a certain amount of tasks, such as lifting, moving objects from point A-B smoothly with no errors or incidents etc.…

In this report I will be addressing the task I have been assigned to, Safety Sensors. I will be explaining what equipment’s I have chosen to complete the tasks require to make this AGV as safe as possible using all kinds of sensor, lights, and audio devices.

Safety sensors are extremely important in any automated moving vehicle, it insures safety when the machine is unattended which is all the time because AGV’s are made to run and operate on their own without any supervisions so it’s important to insure that this machinery knows its surrounding and doesn’t run into people or objects.

## Personnel & obstacle detection

* **Proximity Sensors**

For personnel and obstacle detection I have decided to use proximity sensors.

Proximity sensor are able to detect the presence of nearby objects without any physical contact. This is very useful because we want the AGV to detect an obstacle before it makes contact and an incident occur.

We are going to connect the proximity sensors to the motor control because we want the AGV to come to a stop when it detects an obstacle, this is why we are connecting it to the motors because they control the movement and speed of the AGV. We are going to program the proximity sensors to have 3 different sections of detection and connecting that to the motor we could have one section (the furthers from the AGV) where the AGV slows down seeing if the object is moving and another section (middle range close to the red zone) where the AGV slows down to a point of which it is about to come to a full stop and another section (the Red Zone) where the AGV comes to a complete stop because it has detected an obstacle in the red zone range.

Cost: the costs of proximity sensors are not that dramatic, it all depends on manufactures (the brand). If you are looking for something fancy or more advance for industrial work than you are looking to pay a price. Prices ranges from about $5 to about $300. We are not looking for anything fancy, our price range is around $5 - $10.

## Personnel & obstacle detection alarm

Rather than just having the proximity sensors to operate the AGV when obstacles are detected, we are going to need lights and sounds to alarm personnel that the AGV is in operation and also when an obstacle is detected.

We are planning to put lights and audio alarms all around the AGV to alert personnel’s.

* Audio alarm

We are planning to use a beeping sound to alarm personnel when AGV is operational or an obstacle is detected, but not too annoying. We are going to program 2 different sounds tempos, 2 bars when AGV is in full operation and 4 bars when an obstacle/error is detected.

* Lights

With the light, we are going to have the light always in operation when the AGV is in operation. The lights are going to be all around the AGV.

Audio alarms and lights are a large part of safety in machinery it alerts all personnel that the AGV is in operation.