**VIP project**

**Second Semester of 2018**

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**Santiago de Cali, Colombia**

**2018**

**Introduction**

In the VIP project, the group made up of students from industrial engineering, have decided to focus their learning project in vehicles controlled in two ways, by commands and by automatized. That commands, will be initially controlled by hand and by visual sensors, but the group goal is reach develop a totally automatized vehicle in such a way that can optimize the inventory process, setting aside the classic manual methodology.

**Summary**

The VIP project started by doing brainstorming, deciding the equipment to make and the protection that it would has. As a group, the decision was to make a vehicle controlled at the beginning manually, but the goal is to have a vehicle completely automatized. Initially, when the assemble was joined with pieces of FischerTerchnik by following the instructions of a “controlled vehicle guide”, other partners were making the algorithm which drive the vehicle, in four directions (forward, backwards, left and right), by using buttons.

**Key words:** Project, vehicle, remote control, sensors, automatized, FischerTechnik, algorithm.

**Investigation Problem:** ¿How make better the inventory process in the industry by using automatized equipment?

**Justification:**  It was identified that the inventory process in a company could be improved with implementation of an automated vehicle capable of identifying and having in control each of the elements in an inventory warehouse.

**Objectives (general and specific):**

**Overall objective.**

Develop a vehicle capable of performing the inventory process autonomously.

**Specific objectives.**

1. Develop the algorithm for the vehicle can move (only forward and backward), build the vehicle's chassis, make the respective connections with the PLC and test the algorithm.
2. Modify the structure of the vehicle so that it can turn to the right and left.
3. Add a front camera to the vehicle, with the purpose of observe from the screen the perspective you have.
4. Add a rear camera to the vehicle, which only turn on when you reverse with the purpose of emulate the reverse sensor that cars have in reality.
5. Design a conditional algorithm so that the vehicle, autonomously, follows a previously indicated route.
6. Develop an algorithm that gives the vehicle the ability to control the inventory of a factory, by counting each of the elements. The count will be informed through the control screen that a supervisor must observe.

**Methodology.**

The methodology used for the elaboration of the project was decided from the beginning since the group decided to divide in two, one for the assembly of the car, and the other to carry out the algorithm, with the purpose of to be more efficient. Each group has an assigned leader, in the algorithm part, the manager is Juan David Herrera, because he has previous knowledge about basic programming. In the assembly, is Esteban Quiroz, because he has done courses on electronics and mechanics. An important aspect is that every certain short period of time a monitoring of the work done so far in both groups is done, this means that anyone knows how the algorithm or assembly is being done no matter which group it belongs to. This method is also very linked to the milestones that exist because it is sequential and with tasks that have a time limit. The work team must adapt to the proposed dates and try to fulfill them in time.

**Expected results.**

The vehicle must be guided by a remote control, additionally, have the ability to walk through the warehouse of the factory autonomously. Also, it is expected that the vehicle makes a correct count of the elements in the warehouse and report on the screen the data obtained.

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| --- | --- | --- | --- | --- |
| Milestone | Date to make | Was it fulfilled on the expected date? | New fulfillment date | Notes |
| 1 | 04/10/18 |  |  |  |
| 2 | 11/10/18 |  |  |  |
| 3 | 18/10/18 |  |  |  |
| 4 | 25/10/18 |  |  |  |
| 5 | 01/11/18 |  |  |  |
| 6 | 08/11/18 |  |  |  |
| 7 | 15/11/18 |  |  |  |