



Maestría en Ingeniería de Automatización de Procesos Industriales

Title

**Implementation of a dual loop feedback control  
for a system of continuously variable transmission**

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# Implementation of a dual loop feedback control for a system of continuously variable transmission

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## 1. Introduction

A Continuously Variable Transmission (CVT) is a transmission having a speed ratio that can be varied continuously over its allowable range. Its speed ratio may take on any value between its operational limits, namely, an infinite number of ratios are possible. A gearbox transmission, on the other hand, has a discrete number of fixed speed ratios.

The application of a CVT instead of a stepped transmission is not new. Accurate control of the CVT transmission ratio is essential to achieve the intended fuel economy and moreover ensure good driveability.

## 2. Objectives

### 2.1. General objective

Implement dual loop feedback control in a CVT transmission to reduce energy consumption.

### 2.2. General objective

- To Generate components containing a CVT, to achieve integration prototype transmission.
- To Build a band positioning system for speed control of the CVT.
- To Develop a system of monitoring effort in the drive system to determine which is working on a range of proper operation.

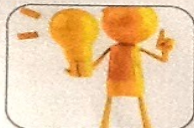
## 3. Method



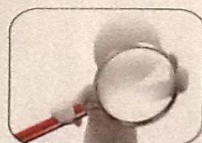
Construction of prototype CVT.



Characterization of the prototype.



Proposal Control.



Control Implementation.

Figure 1. Methodology utilized in this research

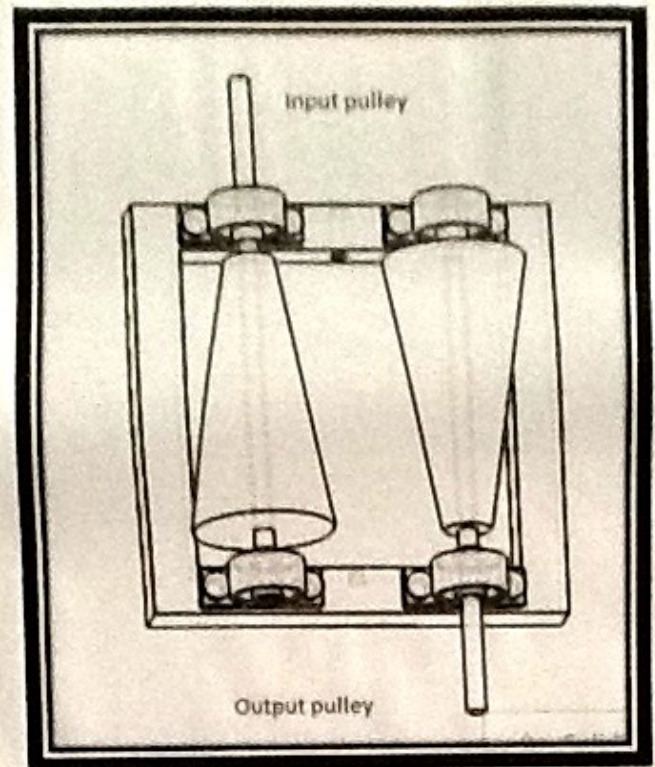


Figure 2. Example of a CVT transmission

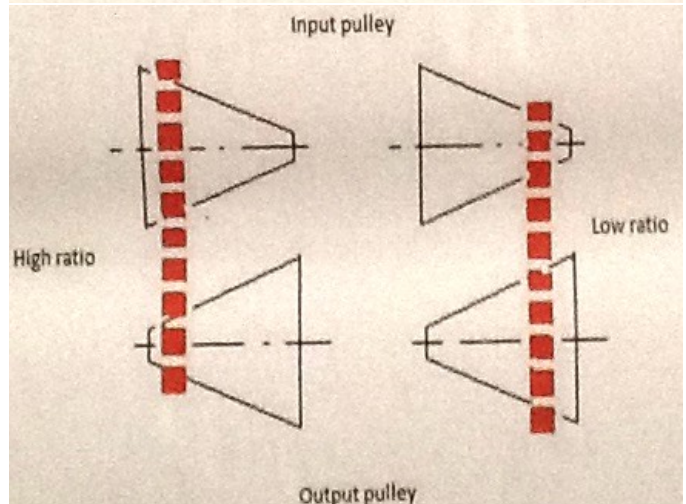


Figure 3. Basic operation of a CVT transmission

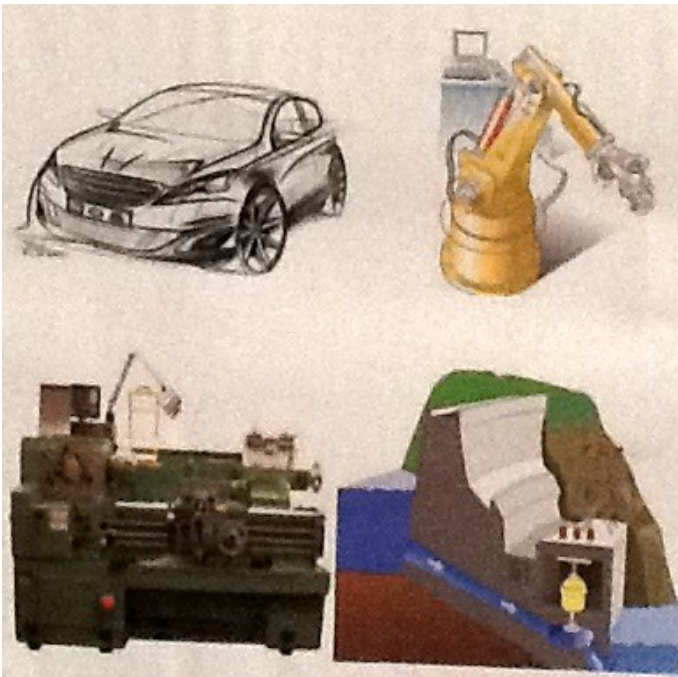


Figure 4. Application of a CVT

## 4. Results

After making the prototype design to use, is obtained the construction of the prototype which it is the first tangible result, the termination of the first specific objective.

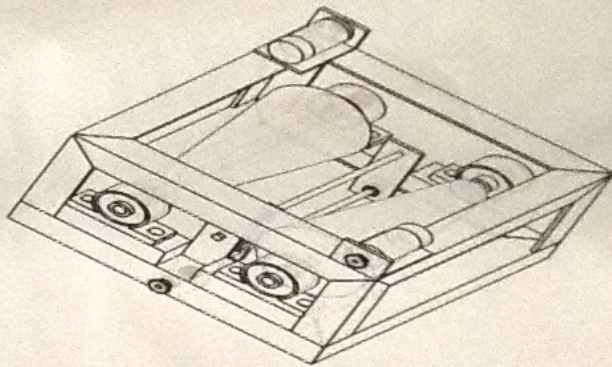


Figure 5. Conceptual design.

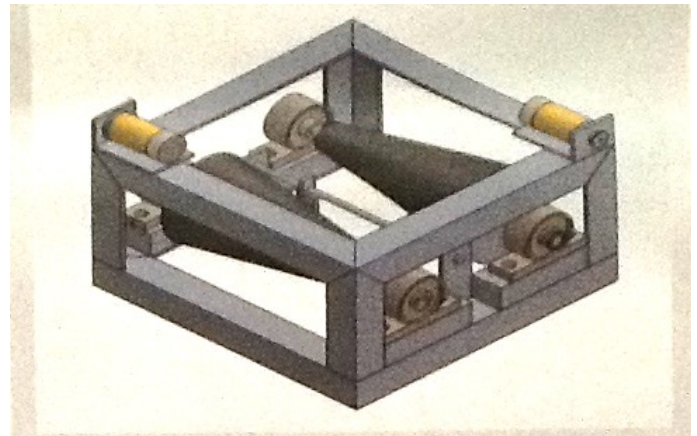


Figure 7 Definition of materials.

## 5. Conclusion

A continuously variable transmission is a promising transmission technology that can provide higher energy economy.

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