CHAPTER 1
INTRODUCTION

1.1 Background

Start in October 2017, Indonesian government will be change a payments process an a toll road into electronic payments / e-money. At a toll gate, the a mount of cost to be paid by the driver is determined by the number of tire axis. Vehicle with the same number of axes will be grouped in one class. This rule is regulated by Kepmen PU No 370/KPTS/M/2007.

At the toll gate operator will be determine the axes' tire manually. This is of course does not support the policy which will be implemented in October. This is also full of lack, amount of other thing, the possibility mistake determine the number of tire axes, made by the operator. To elimination error preferably use automatically system which can determine the number of tire axes.

Base on the issue above, this project will create an embedded system than can calculate the number of tire axes automatically. The automatically system will be developed by IR Obstacle to calculate the number of tire axes on the vehicle which entering the toll gate. The IR Obstacle sensor will be connected into Arduino microcontroller. And the microcontroller will be uploaded data into Iot server named Thingspeak.The other sensor will be used are Laser detector, LDR, ultrasonic sensor. Laser detector will detect if any vehicle enter the toll gate. Then sensor IR Obstacle will calculate the number of tire axes, the paid price will be displayed on the LCD. This project will be support government policy on the use of automatically system on the toll road.

1.2 Scope

Based on the problem and the project mention above, the scope which will be discussed are :

1. Detect if there is a vehicle that enter the toll gate.
2. Count the number of tire axes using sensor IR Obstacle.
3. Determine the price based on the tire axis.
4. Record data from sensor IR Obstacle uploaded to Thingspeak IoT server. This data will be use as report to the government.

1.3 Objective

The purpose of this project is automatically determine the vehicle class by counting the number of tire axles use IR Obstacle sensor connected into arduino microcontroller and thingspeak IoT server.