

# HASSLE-FREE TAX CALCULATION WITH BARCODE USING ANDROID APP

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**ABSTRACT:** A Policy named as “**One Nation One Tax**” is called the Goods and Services Tax (GST). It is a value-added tax levied on most goods and services sold for domestic consumption. The Design of GST Model was done by a set up team headed by Asim Dasgupta which was initiated by Former Prime minister Shri. Atal Bihari Vajpayee Later then after a decade Shri. Narendra Damodardas Modi the present serving prime minister of India launched a scheme of GST on July 1,2017.

GST is paid by the one who is the buyer of the product or who availed services. Nowadays, consumers face difficulties in calculating the GST manually, so they are not aware of exact amount of Tax Paid. To overcome this difficulties an android app comes to detect the name, net price of the product by barcode scanning and then it computes GST payable for the product. Each and every citizen of the country can get a knowledge about their taxes.

## KEYWORDS

*Goods and services Tax (GST), Android App, Barcode, Calculation, Purchasing.*

## INTRODUCTION

Goods and Service Tax (GST) is the one we are crossing in our daily life. The imposition of this tax takes place jointly by the center and the state. GST is a necessary indirect tax improvement in India.

This taxation system is a big step to lead India into a more transparent and corruption-free taxation system. GST is a unique and smart taxation system for GDP improvement for our nation by the respective government

**GST inclusive amount** refers to the total value of the product after including the GST amount in the original value of the product. The tax is not charged separately from the customer.

**GST Exclusive amount** refers to the value of the product by subtracting the GST amount from the GST Inclusive value of the product.



**Figure 1: Goods & Service Tax**

The GST comes under four Various Categories:

- **Central GST** (collected by Central Government)
- **State GST** (collected by State Government)
- **Integrated GST** (collected by Central Government)
- **Union Territory GST** (collected by the Union Territory Government).

## HOW GST IS CALCULATED:

GST is a unified system of taxations, It is now possible for taxpayers to know the tax levied at different points for different kinds of Goods Sold and Services given under the regime of GST.

For the calculation of GST, the taxpayer should know the GST rate applicable to various products in various categories. There are different slabs for GST are 5%, 12%, 18% and 28%.

A Simple example for GST Calculation:

If a Product is sold for Rs. 10,000 then the applicable percentage of GST rate is 18%,

The value of net price calculated as :

$$10,000 + (10,000 \times (18/100)) = 10,000 + 1800 = \text{Rs. } 11,800.$$

Sl. No	Product Name	Net Amount	GST (%)	Total
1	Blanket	₹ 618.00	5%	₹ 649.00
2	Mobile	₹ 11439	18%	₹ 13499
3	Noodles	₹43.74	12%	₹ 49.00
4	Oil 5L	₹823.81	5%	₹ 865.00
5	Laptop	₹ 49974	18%	₹ 58970

Table 1: GST Calculation Example

**GST CALCULATION FORMULA:**

**In order to add GST to base amount,**

Add GST Amount =  $(\text{Original Cost} \times \text{GST}\%) / 100$   
 Net Price = Original Cost + GST Amount

**In order to remove GST from base amount,**

Remove GST Amount =  $\text{Original Cost} - (\text{Original Cost} \times (100 / (100 + \text{GST}\%)))$   
 Net Price = Original Cost - GST Amount

**WORKING METHODOLOGY:**

In our daily life, We are purchasing some products. This purchasing process involves, selecting the Products then generating a invoice for payment, then paying for the product which was printed in the

invoice but we are unaware of the GST issued to the particular product. In that situation, if we have some easy method to know about the product details, Specific GST amount expiry/warranty by our own it will be useful for us to overcome this kind of difficulties and know the transparent amount of taxation easily. Every product in the market will have some barcodes to know the details of the product.

The barcode plays a major role in our system that provides the details by scanning. The details of GST can be detected by scanning the barcode of each and every product that we are purchasing through the mobile app. Finally, we can also get the month end report of the GST rate of the products purchased over the month. As a citizen of our country we should know this details. Our system involves to methods such as barcode scanning to calculate the amount of Tax.

For every purchase we can use this app to calculate GST and finally a month end report of total GST of purchased products can be downloaded. This gives a awareness of taxes that we are paying to the government. As a citizen of our country it is our right and responsibility to know this information.

**WORKFLOW:**

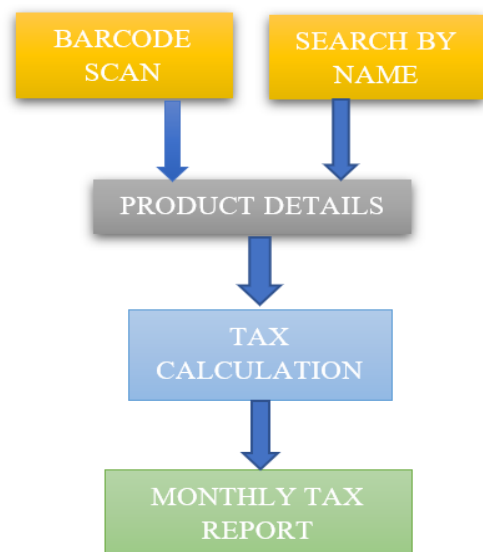


Figure 2: Workflow

**SOFTWARE USED:**

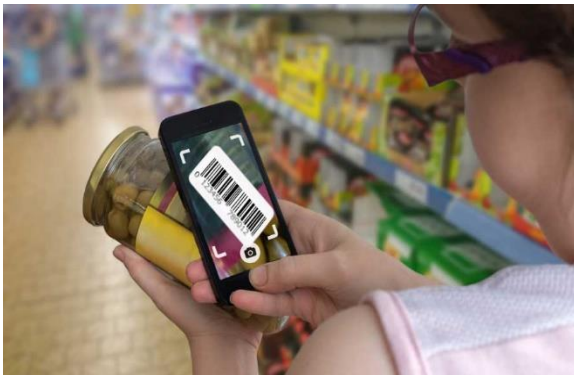
- Android Studio
- Java Programming Language
- User Interface design



**Figure 3: Usage of Software**

**ROLE OF BARCODE SCANNER:**

A barcode scanner is an optical scanner that can read printed barcodes, Decode the data contained in the barcode and send the data to the computer. A barcode scanner gathers product information by scanning a striped code usually located on the back of a product.

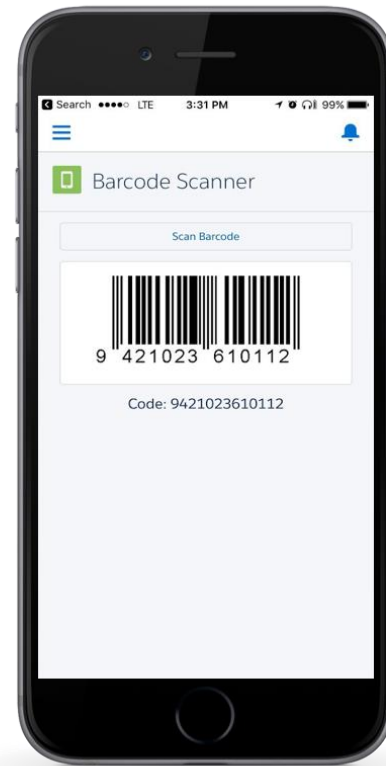


**Figure 4: Barcode Scanner**

Using an iPhone or Android device, a scanner application reads the barcode image pulling information like product actual rate of the product with inclusive or exclusive of GST. The information you gather from scanning a product will be displayed on the screen of the Application.

**Steps for barcode scanning:**

- 1.Install the GST calculator app.
- 2.In that open the barcode scanner
- 3.Hold a barcode or QR code up to the box that appears in the middle of the screen.
4. Once the barcode has been read, information like name and price of the product is detected
- 5.Finally, according to the product GST is calculated and displayed on the screen.



**Figure 5: Processing of Barcode**

**Advantage of the system:**

- 1.Automatically detect the GST of the purchasing product. The android app saves time and reduces the chances of human error while computing the total cost of goods and services.it helps them to know extra taxes availed to the products.
- 2.GST can be categorized under four heads CGST, SGST, IGST, UTGST. This app provides detailed taxes according to the different forms.

3.Barcode scanning in our system detects the name and price of the product. Here exact MRP rate of the product with tax paid amount is identified.

4.In addition, it provides the month end report of total GST rate of the purchased products. We can view and download it

5.Makes users more comfortable to use this app and satisfies the user expectation.

6.Create awareness among citizens about the taxes and keep them updated.

### USE CASES OF THE SYSTEM:

#### GROCERY PRODUCTS:

GST plays a major role in our daily life. Even if it is a small or a huge expensive product GST is fixed to it. Groceries are the basic needs that we purchase it often. Consumers are not aware of the GST availed to that items. It is a basic rights of every citizens in a country to know about the GST of the groceries that are purchased by ourselves. As a solution, our app detects the GST of every products in the grocery store by scanning the barcode or Search by name of the product. This fulfills the unsuspecting nature of the consumers.



Figure 6: Grocery Products

#### HOUSEHOLD APPLIANCES:

Electronic appliances like refrigerators, washing machines, TV also hold GST. It is not only important to check the quality of the product but also to know taxes on appliances. This app helps in detecting

original net price and GST of the appliances. So we can cross verify it with the payment bill provided by the electronic stores. This system not involves any hardware component, it can be easily done through the mobile app.



Figure 7: Home Appliances

#### TEXTILES & GARMENTS:

All types of textile products including apparel, clothing, cotton products have GST under certain percentages according to the rate of the goods. Barcode is labeled on the clothes making scanning easier using mobile app. In addition to this, searching option is also available on the app so we can also search the product name for calculating GST instead of barcode scanning.



Figure 8: Textiles & Garments

#### MEDICAL EQUIPMENTS:

The sale of medicines with inclusive of GST at four different tax rates – Nil, 5%, 12% and 18%. All medicines and medical supplies used at the time of

hospitalization of any individual are charged at Nil rate under GST. Some medicines may not contain barcode in that case search option in our app helps users. They can search the name of the medicine and get the GST.

Medical equipment and apparatus like blood glucose monitoring systems, syringes, stethoscopes, gas masks and so on are taxed under all five rates of GST, namely 0%, 5%, 12%, 18% and 28%. So we can also scan or search the equipment to calculate the GST.



Figure 9: Medical Products

**CONCLUSION:**

In this paper, we have proposed a GST calculation using Barcode or Search by Product name, we can be able to calculate our taxes and generate a monthly report on demand basis. For future work, we will consider improving the speed of the proposed method.

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