

## **CASE STUDY: RFID SMART CARD SYSTEM**

### *Bangladesh Road Transport Authority*

The Radio Frequency Identification (RFID) and Smart Card System is a combination of innovative technologies into a single, efficient system. In the case of CNS' RFID system, this technology is used to vastly enhance the efficiency of toll plazas using our Modern Computerized Toll Management System (MCTMS).

### **Our History in RFID Technology**

CNS has been implementing RFID technology into the MCTMS since its inception in 2013. Since then, CNS has overseen the introduction of RFID Smart Card technologies at several other MCTMS sites across the country. These are:

- 2015 - Meghna Bridge
- 2015 - Meghna-Gomti Bridge
- 2016 - Bangabandhu Bridge

Over the past decade, the CNS has rapidly introduced MCTMS facilities elsewhere following the success of the MCTMS at the 6th Bangladesh-China Friendship Bridge. Consequently, CNS has been able to develop its RFID and Smart Card technologies at a selected site. Building upon the initial experiences of implementing RFID Smart Card systems, CNS has gradually expanded the scope of these systems to incorporate more advanced software and hardware technologies.

### **Operator Benefits**

The speed, efficiency, and ease of use of the RFID systems increases the rate at which toll plazas using the MCTMS process vehicles whilst also improving customer experience. Vehicles passing through these tolls can travel through significantly faster, reducing wait times whilst still increasing the amount of traffic a toll plaza can process. Consequently, toll plazas that have deployed these systems have seen a significant rise in revenue.

In an age where more and more vehicles are on the roads, keeping traffic flowing is crucial. These RFID and Smart Card systems, working in tandem with each other, are an effective solution for easing congestion at toll booths. The Smart Card 'touch and go' feature allows drivers to pass through with the tap of their card, drastically reducing congestion. Similarly, the RFID system allows drivers with express passes to pass through completely unhindered.

By implementing CNS' innovative RFID Smart Card System and MCTMS products at a toll facility, that facility will see a significant improvement in efficiency, profitability, and customer satisfaction.

### **CNS Technology**

The Radio-frequency identification Smart Card System developed by CNS is an innovative product designed to keep people on the go. As part of the Modern Computerized Toll Management System (MCTMS), CNS' Smart Cards make toll plazas more efficient at processing vehicles.

RFID technology uses electromagnetic fields to detect and identify radio tags attached to an object. The system uses radio transmitters to transfer data when triggered by electromagnetic waves. This innovative yet simple system allows for quick identification of an object, vehicle, or product. CNS implements RFID technology in several ways. However, all RFID and Smart Card technology used by

CNS communicates with Bangladesh Road Transport Authority's (BRTA) central vehicle registration database. With this information, the system independently cross-references the Smart Card data with the BRTA's database to identify the vehicle type and issue the correct fee. Consequently, vehicles pass through an MCTMS toll enhanced with RFID technology significantly quicker than more antiquated facilities. Owing to its interconnectivity with the BBA and BRTA, the MCTMS – and the associated RFID system - can be adjusted remotely on demand. New toll charges can be inputted and implemented at each location across Bangladesh within an hour.

Another useful RFID tool system into the MCTMS is the 'touch and go system.' The Smart Cards used by CNS have a range of ease-of-use features that encourage customers to use them. The cards are registered against a phone number, allowing cardholders to top up their accounts via their mobile phones. CNS' system also sends automated SMS notifications to cardholders when they need to add more money into their accounts. The cards can be purchased from banks or toll plazas with VPN secured connectivity. Customers passing through the toll can use their RFID Smart Cards to tap on an RFID sensor at the tolls, allowing them instant passage as the system automatically deducts the toll from a digital wallet. Similarly, an 'express lane' with long-range RFID scanners allows drivers to pass directly through the toll without stopping by detecting their Smart Cards as they drive through. These innovations ensure that traffic can flow consistently through a toll plaza using the RFID and MCTMS technology.