



# Afta Robot

## Mobile Solutions To Increase Efficiencies in the Minibus Industry

An estimated 15 million South Africans rely on minibus taxis to get where they need to be on a daily basis to see loved ones, earn a living, acquire an education, or gain access to health care. This represents 70% of the public transport market and nearly 10 billion trips annually. Afta Robot, currently implemented in the South of Johannesburg, is a technology platform that consists of a suite of mobile applications, a portal, and a cloud backend that aims to improve the operational efficiency of taxi associations, as well as travel safety for commuters. The minibus taxi industry, represented by 330 taxi associations who use over 360,000 minibuses, are not able to measure operations systematically as most core functions largely remain paper based. This program aims to ensure safer operations in the transportation industry by enabling improved monitoring, ultimately decreasing operating inefficiencies and duplication efforts.

## SOUTH AFRICA

### 2018 Statistics\*

Population (est.)  **54.8 million**

Life Expectancy  **63.8 years**

GDP Per Capita (2017 est.)  **US\$13,500**

Mobile Penetration  **157%**

## Challenge

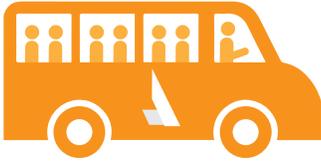
- From a taxi owners' perspective, there is a lack of operational visibility and control of their vehicles' whereabouts once it leaves the property or taxi rank as well as a number of inefficiencies, which all lead to duplicated efforts in driving routes and otherwise resulting in a loss of potential income.
- Currently, drivers are only aware of customers when they see them at physical locations.
- Without the use of Afta Robot, commuters have an inability to safely or reliably plan their journeys due to unreliable taxi schedules, under represented route planning, pick up locations, and open seats on each minibus. As a result, riders are forced to subordinate their life around public transport losing precious time and energy, sometimes on a daily basis.
- Riders also have an inability to communicate with industry directly to provide feedback on drivers safe driving habits, timeliness, availability of a ride to their specific locations, and more.
- A study done by the Automobile Association of South Africa recorded an annual total of 70,000 minibus taxi crashes—double the rate of any other type of passenger vehicle crashes.
- According to Arrive Alive, Minibus taxis frequently operate at speeds higher than the speed limit to cut travel time and secure more passengers. While operating at high speeds and overloaded with passengers, the stopping distance changes considerably, often resulting in fatal consequences.

## Proposed Solution

- Using Qualcomm-enabled 3G/4G devices with bluetooth, beacons and other advanced wireless technologies, the program created a transport management technology platform consisting of a suite of mobile apps running from a cloud backend.
- The Afta Robot team trains minibus taxi drivers, owners, queue marshals and minibus association staff to use mobile devices to gather route activity and performance, enabling commuters to receive route information, estimated time of vehicle arrival and trip time more efficiently than ever before.

\*Sources: CIA World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/>); mobile penetration data provided by Ovum World Cellular Information Service and based on market intelligence.

## Impact



### Improved Route Coverage

Afta Robot provides improved and expanded route coverage across the minibus industry in Johannesburg by mapping routes more effectively than ever before.



### Reduced Redundancies

Expanding the Afta Robot reach improves associations' driver dispatch frequency, cutting down on redundancies.



### Improved Safety

Commuter safety (especially for women) and satisfaction is enhanced due to shorter wait times in remote areas and drivers not needing to rush as much due to improved operational efficiencies.

## Program Stakeholders



**Qualcomm**  
wireless reach

<sup>1</sup> <https://www.arrivealive.co.za/Minibus-Taxis-and-Road-Safety> (accessed July 10, 2017).

<sup>2</sup> Ibid.

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