

The Predictable Unpredictability: Why Anbessa City Bus Fails and How to Fix It Without a Single New Road

By Kaleab Abayneh - Addis Ababa, 2026

I was a student at Addis Ababa Science and Technology University. Like most students, my family did not own a car. But unlike daily commuters, I did not take the bus every day. I took it on weekends, to go home to my family on Saturday or Sunday, and back to campus on Monday morning, since the other alternative was a precarious Taxi ride with an unconscionable price, unaffordable on a student budget.

That meant I experienced Anbessa bus not as a tolerated routine, but as a repeated test. Every Monday, after two days away, I would stand at a bus stop and re-learn the same lesson: the bus has no schedule, the waiting time is a mystery, and when it finally arrives, it will be overcrowded. I would fight for oxygen among 170 people in a vehicle designed for 100. And through the window, I would watch private cars - each carrying one or two people - crawl past in the same traffic that was swallowing us all.

Sometimes I even wonder how I would feel if I were a regular straphanger. I think it would drive me crazy.

I used to think the private cars were the problem. I used to think widening the roads was the solution.

I no longer think that.

The problem is not congestion. The problem is not even the age of the buses. The problem is a systems design failure - a failure so complete that Anbessa has GPS devices, CCTV cameras, and electronic card validators physically installed on its buses, yet still sells paper tickets with cash, has no real-time tracking, and cannot tell you when the next bus will arrive. The infrastructure for progress is present. The operations of progress are entirely absent.

And the most frustrating part? It is fixable. Not with billions of birr. Not with new roads. With three low-cost, high-leverage interventions.

What the Data Actually Says

The Ethiopian Transport Master Plan (2024), a 30-year national planning document, reports that Anbessa carries approximately 640,000 passengers daily across 110 routes, covering about 78,964 kilometers per day. That sounds impressive, doesn't it? But then you look at the efficiency metrics.

Fleet utilization – the proportion of buses actually in service – stands at 50.53% . The international standard for a well-run urban bus system is 65–75% . Anbessa is nearly 20 percentage points below benchmark. Nearly half the fleet is idle while passengers wait at stations.

Percentage Load Factor (PLF) – a measure of how full buses are – is 65.33% . The international standard is 80–90% . Buses are running below capacity, yet passengers report overcrowding. This paradox is explained by poor scheduling: some buses run empty, others run over capacity. The system is simultaneously under-loaded and over-crowded.

Fuel consumption is 58.36 liters per 100 kilometers. The international standard for a single-deck bus is 35–45 liters per 100 kilometers. Anbessa consumes 30–40% more fuel than it should – a direct cost of aging buses (many DAF models are over 10 years old) and inefficient routing. We should not forget the effect this has on climate change.

The financial picture is worse. The cost-to-revenue ratio – total operating cost divided by fare revenue – averages 0.78. That means for every 1 birr of revenue, the enterprise spends about 1.28 birr. It operates at a loss before tax, year after year, subsidized by the city administration by hundreds of millions of birr annually.

Now add the passenger-level data.

Muktar Husein (2021) surveyed 351 passengers on the Bethel–Merkato route. He calculated a Customer Satisfaction Index of 2.66 out of 5 – just 53.2% . Safety satisfaction scored 2.34/5. Cleanliness scored 2.23/5. During peak hours, buses carried 4.67 to 5.67 persons per seat – a condition that facilitates airborne disease transmission and makes travel impossible for the elderly, children, or anyone with a disability. This issue was conspicuous especially in the Covid 19 pandemic.

Mistir Habtamu (2025) found that 88.7% of users wait more than 20 minutes for a bus. The Customer Satisfaction Index for timeliness was 0.46 – meaning passengers are less than half-satisfied with when buses arrive. For safety? 0.37.

Eighty-eight percent wait more than twenty minutes. Sixty-five percent report discomfort. The fleet is half-idle. The fuel consumption is 40% above standard. The enterprise loses money on every passenger carried.

These are not anecdotes. These are measurements.

The Paper Ticket Trap

Here is the most absurd fact I discovered. Ermias Belachew (2021) documented that Anbessa's buses are equipped with electronic card validators at the entrance and exit. GPS devices. CCTV cameras. The hardware for a modern, cashless, efficient system is already on the buses.

They are never used.

Instead, fare collection is manual. Paper tickets. Cash. Sold on board by a conductor. Each stop takes at least 5–10 minutes for boarding and ticketing during peak hours. The bus spends more time parked than moving. The same system is prone to fraud, revenue loss, and reconciliation delays that leave cash sitting in conductors' pockets for days.

Rwanda solved this years ago. Kigali's "Tap & Go" card system, launched in 2015, runs on 500 buses, 2 million customers, and over 170 million transactions. Passengers tap a contactless card. The system uses NFC technology. It works. And Ethiopia – the birthplace of mobile money – has no excuse.

Instead of activating the hardware the buses already own, the management have implemented a ticket printer system, which takes 2 or 3 more minutes to collect. It's not manual, but not efficient either.

The Fictional Schedule

The second failure is the schedule. Hailu Gemechu (2009) observed that Anbessa buses complete only 23% to 85% of their scheduled trips depending on the route. The schedules themselves are made from optimistic, deterministic trip time estimates that ignore the reality of Addis Ababa's mixed traffic. Delays from intersections, breakdowns, road construction, and passenger crowding are treated as exceptions. But they are not exceptions. They are the rule.

The result? There are no fixed arrival or departure times. Passengers do not know when a bus will come. They cannot plan. They cannot trust.

A schedule that is wrong most of the time is not a schedule. It is a fiction.

The Structural Absurdity

Here is the deepest failure. Ermias Belachew (2021) documents that Anbessa City Bus Service Enterprise and Sheger Mass Transport Service Enterprise report to the Addis Ababa City Manager's Office – the same office that oversees the Solid Waste Management Agency, the Abattoir Enterprise, and the Addis Zoo.

The Transport Bureau – which has the expertise, the mandate, and the staff to manage public transport – has no direct authority over the bus operators.

A bus company is organizationally equivalent to a slaughterhouse.

This is not corruption. This is structural incoherence. And it is fixable with a single administrative decision.

The Fourfold Fixes

I am an electrical engineer. I think like an engineer, not a commentator. So here is my prescription – not a complaint, not a wish list, but a set of actionable interventions with their second-order effects.

Fix Number 1: Activate the hardware you already own.

Anbessa's buses have GPS and card validators installed but never activated. The cost of activation is effectively zero – the hardware is already paid for. Run a 3-month pilot on 20 buses. Track headways in real time. Post arrival predictions via USSD (works on any phone, requires no smartphone, costs pennies per query). Mobile money penetration in Ethiopia is high. Use it. A simple USSD code: dial *xxx#, pay 3 birr, show the confirmation to the conductor. No new infrastructure required – every feature phone already supports USSD.

Second-order effects: Once GPS data exists, you can optimize routes dynamically. You can identify which intersections cause the worst delays. You can hold dispatchers accountable for actual performance. You create a feedback loop where none exists today. Dwell time at stops drops from 10–15 minutes to under 2 minutes. Each bus makes more trips per day. Revenue leakage from fraud and theft stops immediately. Reconciliation becomes automatic. The same system can later integrate with tap cards or NFC when smartphones become ubiquitous.

Fix Number 2: Implement a simple fuel efficiency tracking system

The Master Plan reports that Anbessa consumes 58.36 liters per 100km – 30–40% above international standard. Some of this is aging buses, but some is driver behavior: hard acceleration, excessive idling, poor route adherence. The fix is Installing cheap GPS-based fuel monitors on 20 pilot buses (or use the existing GPS if it can log speed and idle time). Track fuel consumption per driver per shift. Share the data anonymously. Give the most efficient driver a small monthly Bonus. The least efficient driver gets a free driving refresher course.

Second-order effects: Fuel consumption drops by 10–15% within 3 months without any new buses. Drivers learn efficient driving techniques from each other. The data reveals which buses are mechanically inefficient and need repair. The same system can be expanded fleet-wide.

The cost? 20 GPS loggers at approximately 2,000 birr each equals 40,000 birr. One-time. The fuel savings would pay for this in less than a month.

Fix Number 3: Move Anbessa from the City Manager's Office to the Transport Bureau.

This is not a technical fix. It is an institutional fix. But it costs nothing and would align authority with expertise overnight.

Second-order effects: The Transport Bureau already has traffic engineers, planners, and data analysts. They already manage traffic signals, road safety, and vehicle licensing. Giving them authority over buses would enable coordinated traffic signal priority for buses, integrated fare policies across modes, and data sharing between bus operations and traffic management. Today, these institutions do not talk to each other.

Tomorrow, they could.

Fix Number 4: Create a simple SMS feedback system for passengers

Currently, there is no easy way for passengers to report problems: a missed bus, a dangerous driver, a broken-down bus blocking the road. Complaints go nowhere because there is no system.

A simple SMS shortcode (e.g., 8181) could fix it. Passengers text "BUS [route number] [stop] [problem]" – e.g., "BUS 4041 MEXICO OVERCROWDED". These messages go to a shared spreadsheet viewed daily by dispatchers and the customer service team.

Second-order effects: Problems become visible in real time. Dispatchers can send a relief bus to an overcrowded stop. The maintenance team knows exactly where a broken bus is blocking traffic. Patterns emerge: "Route 4 always fails at Mexico station at 8:15 AM" – now you know where to put a supervisor. Passengers feel heard, which increases satisfaction even before service improves.

Cost: A shortcode rental is approximately 5,000 birr per month. A shared Google Sheet is free. One staff member spends 30 minutes per day reading and routing messages. Negligible.

The Objection and the Refutation

Someone will say: "But Anbessa has no budget for technology."

This is false. The hardware is already installed. The cost is not new equipment – it is simply activation. The city already subsidizes Anbessa by hundreds of millions of birr annually. Redirecting a fraction of that subsidy to a 3-month pilot would cost less than what is currently lost to paper ticket fraud every month.

Another objection may be "But passengers are used to paper tickets."

This is also false. Passengers are used to waiting. They are used to unpredictability and unreliability. They are used to overcrowding. They will adapt to a tap card or USSD code within days – as they did with mobile money, as they did with telebirr. The barrier is not passenger behavior. The barrier is institutional inertia.

The Progress That Is Overdue

Private car owners are a small minority of Addis residents, yet they consume most of the road space. The vast majority – students, daily laborers, market vendors – walk or take public transport.

Most students do not have cars. Most students do not have a choice. They are captive to a system that treats their time as worthless. That is not a transport problem. That is a dignity problem.

The Ethiopian Transport Master Plan forecasts that passenger demand will grow by 2.3% to 2.5% annually through 2050 under the Go Ahead scenario. The city will add more cars. The roads will not widen fast enough. The only sustainable solution is a public transport system so reliable, so predictable, so safe that people choose it over private cars.

That system is possible. The hardware is already on the buses. The technology exists. The institutional fix is simple.

What is missing is the recognition that this is not a resource problem. It is a design problem. And design problems have solutions.

I am Kaleab. I am an engineer. I build civic tools. And I am tired of waiting for a bus that never comes on time – especially on Monday mornings, when I just want to get back to campus and learn.

Let us build the system that should have existed yesterday.

This essay is dedicated to every student who has ever missed a Monday morning class because a bus decided not to arrive.

Sources:

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4. Ermias Belachew (2021) – Fare Collection Management in Government Owned Public Bus Transport of Addis Ababa (MSc thesis, AAU)
5. Hailu Gemechu (2009) – Alleviating Scheduling Problems in Anbessa City Bus Service Enterprise (MSc thesis, AAU)
6. Mistir Habtamu (2025) – Evaluating the Efficiency of Addis Ababa's Public Bus System (MSc thesis, EiABC)