

Research Note Short Communication

RemitDubai – An Easier way for Migrant Laborers in the UAE to Compare Exchange Rates

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ABSTRACT

Migrant workers form the core of the Gulf states, especially the UAE with the rapid development of the desert. Although migrant workers include all forms of the working class, the main goal of the labour class is to send money back to their family. These migrant labourers must go through exchange houses that may have steep fees showcased or already included in the exchange rates used. Hence, the goal of RemitDubai was to build a site that discloses the variety in exchange rates, since when transferring large amounts of money senders would benefit from services that offer the best value. The code estimates the rates, markups and fees by using estimation models, as influenced by Wise Comparison tools and across data findings a few days. The site does make use of fallback rates too, ie, if the external rate API fails or undergoes an error, it would not crash the site and display an estimate showed off the live-market rate. Selecting the most suitable provider for each transfer can reduce the costs for senders, as the small amount of fees encroached in the exchange rates would eventually add up and become another set of expenses.

Keywords: Remittance, Dubai, Exchange Rates, Exchange Houses, Markups, Migrant labourers, Accessible

1. INTRODUCTION

The United Arab Emirates has been an example of some the greatest economic growths in the past few decades. According to Rahman et al. (2024), the gulf states have always been a central hub for migration, however in 1970s with the discovery of oil, it changed the type of migration that occurred. With volumes of oil being found at a rapid rate, the gulf states lacked the population of being able to extract the oil which consequently led to the millions of foreign labourers migrating to the gulf. Furthermore, as stated by the Reuters (2022) , the total global remittance in 2022 was US\$794 billion, and further established by LeanTech (2024), that in 2022, the outbound remittances from the gulf alone were US\$120 billion, approximately 15% from the gulf alone. According to the International Labour Organization (ILO, 2024), migrant workers constituted over 80% of the population that currently resides in UAE; furthermore, Emirati citizens constitute a large majority of the public sector, while the migrant workers would seek employment in the private sector. In reference to Ken Research (2025), the UAE Cross-Border remittance market is on track to rise from US\$39 billion in 2025 to approximately US\$54 billion by the year 2032, indicating the rapid rise of outflow and inflow of remittance from residents of Dubai.

According to NOW Money (2018), a large majority of migrant workers in Dubai constitute to foreign labour, generally from lower/uneducated backgrounds. The main goal of the foreign labour working in Dubai is so that they can send large amounts of their salary back to their loved ones in their home country, since their salary would convert to large amounts in their hometown. However, with the lack of knowledge on technology, most of them fail to understand remittance processes and are forced behind by digital divide

and solely rely on physical exchange houses through cash transfers, that could easily implement hidden fees and modified exchange rates to exploit the workers. It is unrealistic to expect laborers to work 10-12 hour days in the heat be able to use their off days to travel to exchange houses or learn about technology to send the money digitally.

Which is why RemitDubai has been developed to indicate the current online exchange rates for multiple providers in the UAE, and which one of those would provide the absolute best rates in the UAE, to ensure that laborers do not lose their earnings to marked up rates without the opportunity or time to compare between exchange houses in goals of laborers from expenditure and getting the most out of their money.

2. RESEARCH CONTEXT

2.1 Existing platforms and services

Across the world multiple platforms do exist however globally the most prominent platform globally for comparison remains Wise (2022), specifically Wise's exchange comparison platform and Remit (2026, remit.ae locally.

In terms of Wise (2022), their audience solely relies on global players and the comparison platform focuses primarily on global exchange corridors and specifically showcases Western corridors on their publically available API and shows platforms for money being remitted into UAE but fails to showcase comparison rates for exchange houses within the UAE such as LuLu Exchange and Al Ansari Exchange. After analyzing their comparison platform and after researching further, it became clear that the only way to get live exchange rates from multiple exchange houses would either require a scraper tool or predictive/estimation models; in the case of Wise (2022), they make use of predictive models that would calculate mark up rates and fees.

On the local side of platforms, remit.ae exists as a well-established competitor with substantially wide coverage that has a lot more coverage than RemitDubai. It shows corridors to multiple countries and exchange houses, with methods and extensive review guides and scores for each exchange house. However, albeit they have a large coverage of features and exchange houses, the site remains rather difficult to navigate for someone who would new to technology and may lack the time to interpret what its review guides refer to. However, in terms of sole features this site does remain the strongest existing work in the UAE and was used in this project as a reference source as well as an existing piece of work.

2.2 Methods of sourcing data

Alongside using remit.ae as one of the means of sourcing data, multiple other sources and API's exist that allow to source data and use the live exchange rate in the calculations and graph measurements. Notably Frankfurter API which is a free historical FX and requires no API keys or registrations and hence allows the hosting of 400 private instances with daily updates on currencies. According to the Frankfurter documentation, the free open source service is well suited with agents and AI models allowing future implementation of AI into the site. Although Frankfurter does track multiple central bank corridors and currencies, it fails to track crucial corridors for the site such as PKR as their focus mainly exists on European central banks.

Another open endpoint source is the ExchangeRate-API by AYR Tech (2010) that allows the developer to access free live rate exchange rates for over 160+ currencies including the PKR corridor that Frankfurter failed to provide. Alongside Frankfurter, this too updates once daily.

2.3 The goal of this project

Remit.ae offers similar functionality to RemitDubai does with a lot more coverage and development, research and resources, however the aim is to not replace Remit.ae but rather keep the focus on laborers and make the site as simple as possible that is easy to access with a minimal, simple interface with redirection to exchange house sites for local and global houses.

3. METHODOLOGY

3.1 Languages and Architecture Implemented

- The frontend was developed using React and VITE because it provides a fast development server, and React allows the building of the user interface components.
- The UI library used was Material UI (MUI), to allow the site to become more accessible for the user base.
- Charts to show varying exchange rates were developed using Recharts.
- The backend initially was developed using Java; however, after the prototype, Java was found to be rather verbose and decided to change it to Python + FastAPI for easier development owing to greater familiarity with python
- Validation was done using Pydantic to ensure that the input was validated and the code did not crash due to invalid inputs.
- The code was documented using GitHub to allow the code to be accessed from multiple devices while maintaining a log of the code for timestamps.
- The site is hosted on the Render servers.

3.2 UI Architecture

The user enters the amount they wish to see the conversion for and destination currency with a choice between EUR, INR, PKR, and PHP. The frontend would send a request to the backend and the backend would then fetch the live mid-market rate, however sourcing the live exchange rate and fees from each provider, and to my knowledge is not possible since an API does not provide these rates publicly.

Since the exact provider rates cannot be accessed using an API, I would have to analyze each providers rates for multiple values of AED to figure out the mark up, that is, the way each provider would modify the live exchange rate and the fees hidden within the exchange rate modification, the same way Wise Comparison API gets its values for global exchange houses.

3.3 Calculation Methodology

$$\text{provider rate} = (\text{live mid market rate}) * (\text{provider markup})$$

$$\text{recipient receives} = (\text{amount entered} - \text{fee}) * (\text{provider rate})$$

where,

‘live mid-market rate’ represents the live worldwide exchange rate sources from open.er-api.com

‘provider markup’ represents a fixed fraction that indicates the percentage at which each provider shows the exchange rate relative to the live mid-market rate

fee refers to a fixed fee as shown on the exchange house sites (*note that most sites include their fees within their exchange rates and never disclose the fee)

Sourced Markups for the 6 providers showcased for 1000 AED to INR

Provider	Markup on 30/09/2026	Markup on 03/10/2026	Average Markup	Site Estimate (INR)	Actual Value (INR)	Error
Wise (global)	0.9920	0.9841	0.9880	25.927	25,761	+0.65%
GCC Exchange	0.9917	0.9986	0.9951	26,114	26,140	-0.10%
Al Ansari (UAE)	0.9943	0.9974	0.9958	26,132	26,110	+0.08%
LuLu Exchange (UAE)	0.9995	1.0001	0.9998	26,237	26,180	+0.22%
Remitly (global)	1.003	1.0062	1.0046	26,231	26,208	+0.09%
Al Fardan Exchange	0.9934	0.9966	0.9950	26,111	26,090	+0.08%

The markups remain an average of values taken over two days; further data would be collected to optimize the estimation model mark up rate to ensure that the value remains as consistent as possible.

However, on the other hand, the provider rate shown Remitly is the promotional rate for the first 4000 AED, hence I will either need to transfer 4000 AED to find the actual rate or obtain the standard rate from an existing Remitly customer to get the actual rates for that day and find the average.

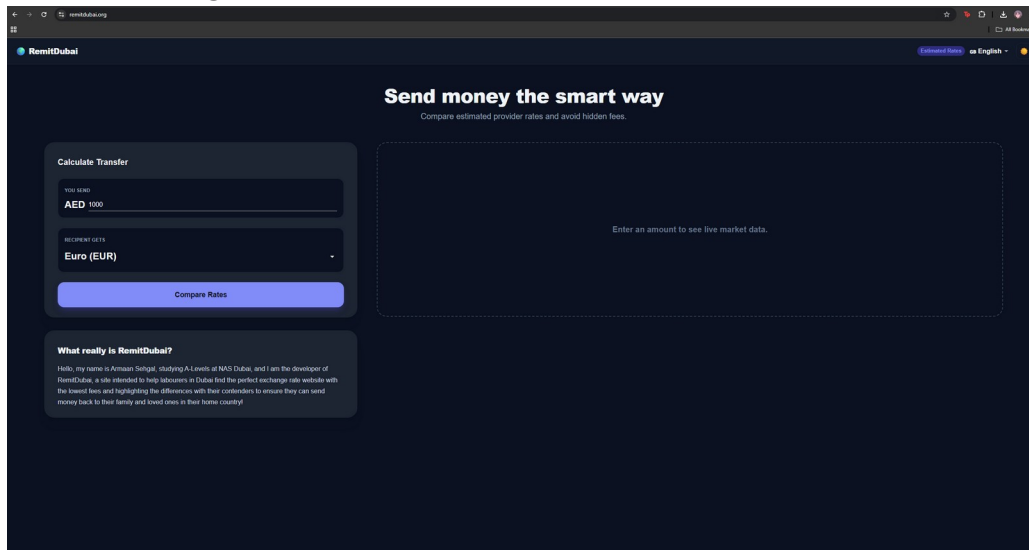
Albeit the estimation model falls within 1% of accuracy from the actual quotes, which is within an acceptable range.

However, the main limitation is the fact that it is impossible to track down Wise’s Exchange tool fees because they keep varying based on the amount being sent and the destination which it is being sent to. Theoretically, Wise (2022) may be most competitive for small amounts but considerably less competitive for large amounts.

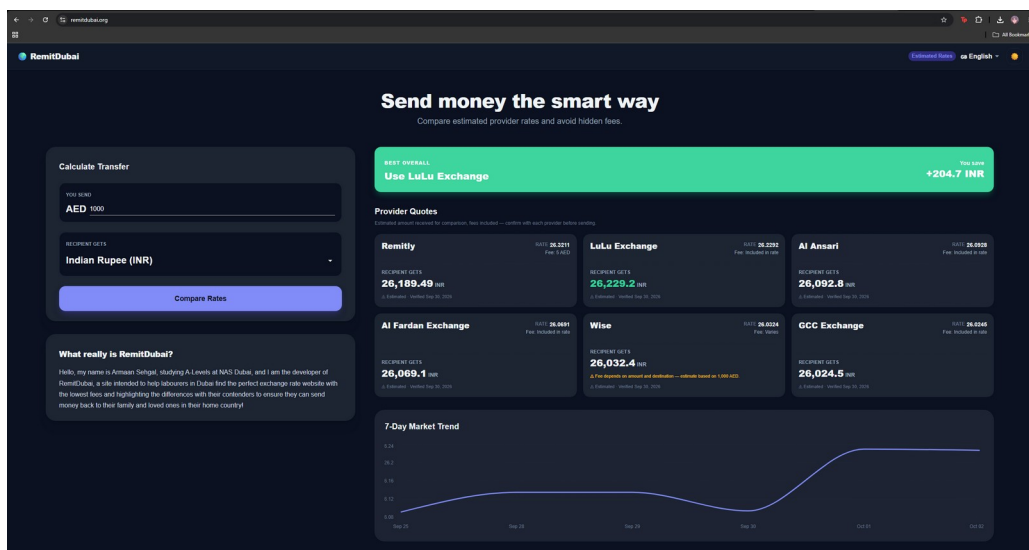
3.4 Accessibility

A central aim of this project was reliant on the fact that it remains simple and accessible for the users to navigate the site, which have been included a multilingual model that showcases the data and text present in English, Hindi, Urdu, Arabic and Tagalog, including the fact that the text flips for Urdu and Arabic. Light and dark modes have become a standard feature of modern websites and apps. If the API call fails and leads to a backend error, rather than the site crashing it would indicate that an error has occurred and the user would need to retry. Finally, to maintain simplicity the site is singular web page that would showcase an introduction, the conversion key, the graphs to show the varying live exchange rate, the 6 providers alongside the best provider on that day.

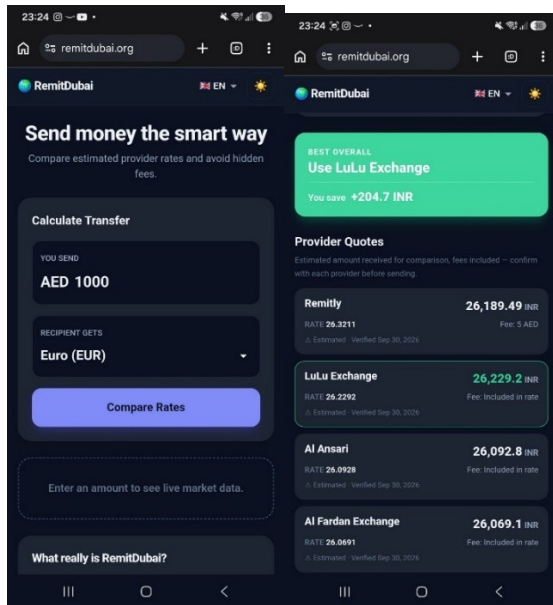
3.4 Website image showcase



Desktop Image 1



Desktop Image 2



Phone Image 1

Phone Image 2

4. KEY FINDINGS

4.1 Data availability and accuracy

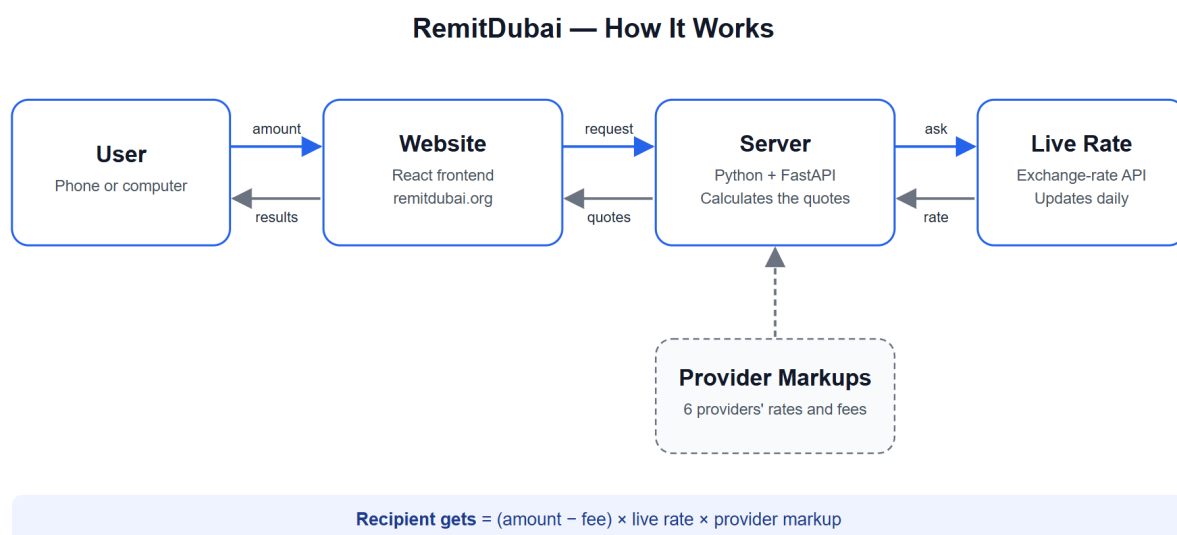
This links back to section 2.1 where I mentioned the fact that Wise's Comparison tool API did not hold data for UAE out corridors which forced me to find other sources such as remit.ae and even carry out my own calculations to figure out markup rates to ensure the user would get the best possible rate. The markup rates are used to ensure that the actual conversion rate is modified based on each provider's current rates based on past trends of conversions that have been collected over a few days of analysis. Each provider has the freedom to change the rate at which they markup which causes me to have to check the rates every month and carry out comparisons to see any changes in markup rates or fees that have been indicated.

4.2 Latency times

When the site latency is checked using /api/health, it shows that communicating with the server takes up to 300ms, and the actual quote checked using /api/quote takes around 409ms, indicating the work and calculations done take approximately 109ms, while the 300ms is used up because of distance that the site backend needs to cover to communicate with the Render servers. According to Joseph M. (2025), a good website response time is considered to be 0.8 seconds (800ms) or under, with a mean response time of 409ms it meets the requirements of having good response time.

Run Number	/api/quote (milliseconds)	/api/health (milliseconds)	Difference (milliseconds)
1	420	283	137
2	429	330	99
3	396	294	102
4	397	300	97
5	405	294	111
Mean	409	300	109
Median	405	294	--
Standard Deviation	14	18	--

4.3 Structural/Architectural Diagram



4.4 User testing/feedback

To test the claims of accessibility, interviews have been taken of house helps and drivers within the Villanova Community of Dubai with their consent and they are not to be named. From the five interviews that have been conducted to this date, the users claim to find this site rather useful as they did not know of the encroached fees and varying exchange rate. Majority claim to find Remitly to be the most user friendly with beginner rates superseding other competitors. However, solely based on accessibility, they did find RemitDubai to be the easiest to navigate with its simple design, aimed to not confuse the user.

5. DISCUSSION

The site made has several limitation and will constantly be developed to ensure the site remains accessible, easy to use and show as accurate of data as possible. One limitation being the lack of out corridor currencies such as Bangladeshi Taka or Nepalese Rupee, which have plans of being including in future as these two nationalities do make up a large part of the work force in the UAE. Another limitation would be the lack of data now to showcase as accurate of a markup rate, although further readings are not expected to change the results substantially, since further data would improve accuracy. Alongside the accuracy of data, future

versions would include additional more exchange houses, some more prominent in the UAE such as Al Rostamani and Redha, and a lot more global houses that offer UAE out corridors for labourers with competitive rates.

6. CONCLUSION

The goal with this project is to provide a platform that would compare exchange house rates to ensure that labourers do not lose significant value for their money and to prevent the fees from becoming a large part of their yearly expenses. The site remains accessible with 5 language settings, a light/dark theme, while ensuring that honesty is maintained by highlighting the fact that the rates showcased are estimates. All the providers showcase fall within a 1% accurate value rate from the model, while the most unreliable was an error rate of 0.65%, which have plans on being reduced over the next collections of values. Alongside implementing more currency options and a larger number of exchange houses to compare, Plans to promote this site in NGO's and community organizations, to make it publicly known remain viable and hope to provide a meaningful benefit to migrant labourers.

NOTE* The AI tool that I used to learn web development for the frontend and backend was Claude, since it helped me understand the basics using prompt engineering, and then I could further develop the code myself

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