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Historical Analysis and Calibration of Al-Mujahidin Oldest Mosque, Parepare City

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Abstract

According to Surah Al-Baqarah, facing the Qibla is a religious requirement in performing Salah (prayer). Therefore, the aim of this research is to understand the methods used to determine the Qibla direction of Masjid Al-Mujahidin in Parepare and to analyse the calibration of its Qibla direction. This research uses a qualitative approach with field research methodology. Data analysis is carried out using a descriptive approach to provide an overview of the research object and to test the hypotheses. The findings of the research indicate that: 1. The method used to determine the qibla direction of the Masjid Al-Mujahidin in Parepare is a combination of a compass and observations of the sun's shadow. 2. The calibration of the mosque's Qibla direction shows a deviation of one and a half degrees. Although this deviation is considered small, it can be tolerated under certain circumstances or within certain parameters.

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A. Introduction

Facing the Qibla during prayer is a prerequisite for the validity of prayer. The direction of the Qibla must be determined based on the provisions of the Shariah, as stated in several verses of the Quran, Surah al-Baqarah verses 144, 149 and 150[1]. For those who are not sure about the direction of the Qibla, it is necessary to do research and make efforts to determine it. If there is someone who can be trusted to give definite information about the direction of the Qibla, then the individual should follow him[2].

Allah the Almighty says[3]:

قَدْ نَرٰى تَقَلُّبَ وَجْهِكَ فِى السَّمَاۤءِۚ فَلَنُوَلِّيَنَّكَ قِبْلَةً تَرْضٰىهَاۗ فَوَلِّ وَجْهَكَ شَطْرَ الْمَسْجِدِ الْحَرَامِۗ وَحَيْثُ مَا كُنْتُمْ فَوَلُّوْا وُجُوْهَكُمْ شَطْرَهٗۗ وَاِنَّ الَّذِيْنَ اُوْتُوا الْكِتٰبَ لَيَعْلَمُوْنَ اَنَّهُ الْحَقُّ مِنْ رَّبِّهِمْۗ وَمَا اللّٰهُ بِغَافِلٍ عَمَّا يَعْمَلُوْنَ

Meaning:

Indeed, We see you ˹O Prophet˺ turning your face towards heaven. Now We will make you turn towards a direction ˹of prayer˺ that will please you. So turn your face towards the Sacred Mosque ˹in Mecca˺—wherever you are, turn your faces towards it. Those who were given the Scripture certainly know this to be the truth from their Lord. And Allah is never unaware of what they do. Al-Baqarah [2]:144.

Allah the Almighty says:

وَمِنْ حَيْثُ خَرَجْتَ فَوَلِّ وَجْهَكَ شَطْرَ الْمَسْجِدِ الْحَرَامِۗ وَاِنَّهٗ لَلْحَقُّ مِنْ رَّبِّكَۗ وَمَا اللّٰهُ بِغَافِلٍ عَمَّا تَعْمَلُوْنَ

Meaning:

Wherever you are ˹O Prophet˺, turn your face towards the Sacred Mosque. This is certainly the truth from your Lord. And Allah is never unaware of what you ˹all˺ do. Al-Baqarah [2]:149

Also in the words of Allah the Almighty:

وَمِنْ حَيْثُ خَرَجْتَ فَوَلِّ وَجْهَكَ شَطْرَ الْمَسْجِدِ الْحَرَامِۗ وَحَيْثُ مَا كُنْتُمْ فَوَلُّوْا وُجُوْهَكُمْ شَطْرَهٗۙ لِئَلَّا يَكُوْنَ لِلنَّاسِ عَلَيْكُمْ حُجَّةٌ اِلَّا الَّذِيْنَ ظَلَمُوْا مِنْهُمْ فَلَا تَخْشَوْهُمْ وَاخْشَوْنِيْ وَلِاُتِمَّ نِعْمَتِيْ عَلَيْكُمْ وَلَعَلَّكُمْ تَهْتَدُوْنَۙ

Meaning:

Wherever you are ˹O Prophet˺, turn your face towards the Sacred Mosque. And wherever you ˹believers˺ are, face towards it, so that people will have no argument against you, except the wrongdoers among them. Do not fear them; fear Me, so that I may ˹continue to˺ perfect My favour upon you and so you may be ˹rightly˺ guided. [2]:150

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Facing the Qibla is also one of the duties of prayer[4]. A prayer is considered invalid if it is not facing the Qibla, except in certain situations such as Salat Khauf (emergency prayer) or prayer while travelling[5]. Facing the Qibla is very important in the performance of prayer.

Al-Mujahidin Mosque is one of the oldest mosques in the Parepare City area. This mosque has an important history as a centre for education and the spread of Islam in Parepare[6]. In this study, researchers used advanced methods, namely istiwa' stick and theodolite, to determine the Qibla direction of the Al-Mujahidin Mosque in Parepare City. This research is important to ensure accurate Qibla direction and in accordance with prayer requirements.

In this study, the problem formulation focused on determining the Qibla direction of the Al-Mujahidin Mosque in Parepare. The first question was about the method used to determine the Qibla direction in the mosque. This method included various techniques or tools used to determine the correct direction of the Qibla. Furthermore, the second question related to the process of calibrating the direction of the Qibla in the Al-Mujahidin Parepare Mosque. Calibration is an important step in determining the direction of the Qibla accurately and precisely. By answering these two questions, the research provided an in-depth picture of how the direction of the Qibla was determined and calibrated at this mosque, as well as the importance of this process in maintaining the accuracy of the direction of the Qibla at the mosque[7].

This research focused on determining the direction of the Qibla at the Al-Mujahidin Mosque, located in the city of Parepare. The mosque was the main object of research, so the research did not include other mosques outside the Parepare area. The methods used to determine the direction of the Qibla were traditional and modern methods used in the mosque. The traditional method uses the sun and stars as a reference for the direction of the Qibla, while the modern method relies on technology such as GPS or digital compasses. To ensure the accuracy and reliability of the Qibla direction results, a calibration analysis was carried out comparing three methods: Google Earth, Istiwa' and theodolite[8]. However, this research did not discuss the social or religious aspects related to the use of Qibla Direction in the mosque. The main focus was on the technical aspects and accuracy of determining the Qibla direction. The data used in the research was obtained with the permission and cooperation of the mosque management and through the use of technical tools such as theodolites and related electronic equipment.

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The studies by ABD Karim Faiz, Bustanul Iman and Fathur Rahman Basir and Nur Aisyah discuss the determination of the direction of the Qibla from the perspective of astronomy, Sharia and the scientific tradition of Bugis navigation. Although these three studies have similarities in revealing the representation of Qibla direction and Bugis navigation, there are differences in the methods and approaches used. ABD Karm Faiz's research focuses on calibrating the Qibla direction of the Al-Mujahidin Mosque in Parepare using Google Earth, Istiwa stick and theodolite methods, while Bustanul Iman's research explores the role of Qibla direction in prayer from the perspective of scholars. On the other hand, Fathur Rahman Basir and Nur Aisyah's research discusses the genealogy of the scientific tradition of Bugis navigation by incorporating Islamic astronomical knowledge and the Bugis navigation system into sailing. Although there are similarities in the research themes, each study has a different focus and approach to understanding and revealing the use and meaning of Qibla direction and navigation in Bugis society. Therefore, this study used these three previous studies as a review to complete this research[4].

This research aims to achieve two important things in relation to the Al-Mujahidin Mosque in Parepare. Firstly, this research focused on understanding and describing the method of determining the direction of the Qibla used in the mosque, whether it was the traditional method that relied on the sun and stars as a reference for the direction of the Qibla, or modern methods that used technology such as GPS or digital compasses. Information on the techniques, tools and approaches used by the mosque to determine the direction of the Qibla were comprehensively researched.

Secondly, this research analysed the calibration of the Qibla direction of the Al-Mujahidin Mosque in Parepare using three different methods, including Google Earth, Istiwa' and Theodolite. This analysis aims to measure the level of accuracy and reliability of the results of determining the direction of the Qibla determined by the three methods. Thus, the results of this study provided a clear picture of the accuracy of the Qibla direction used by Al-Mujahidin Parepare Mosque in conducting worship[9].

Theoretically, this research contributed to the development of scientific understanding of the calibration of Qibla direction using Google Earth, Istiwa' Stick and theodolite methods. The results of this research provide relevant data and information related to the three methods, so it can be a reference for further research in this field. In addition, this research can also contribute to a deeper understanding of the techniques and accuracy of using each method in

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order to improve the quality of scientific knowledge and understanding in the field of Qibla direction calibration.

B. Methods

Two approaches were used in this research, the historical approach and the astronomical approach. The historical approach was used to trace the method of determining the Qibla direction of Masjid Al-Mujahidin Parepare in the past, while the astronomical approach was used to test the calibration of the Qibla direction using tools such as Google Earth, istiwa' stick and theodolite[10].

This research uses a field study method with a qualitative approach. The researcher was directly involved in data collection at the research site[11]. Primary data was collected through direct observation and interviews with the mosque takmir and the local community. Historical and astronomical data were also used as primary data sources. Secondary data such as books, journals, articles and statistical data were used as supporting data sources.

Data collection techniques included observation, interviews and documentation. Observations were made using Google Earth, istiwa' sticks and theodolites to observe the direction of the Qibla. Interviews were conducted with resource persons associated with the Al-Mujahidin-Parepare Mosque. Documentation was used as an additional source of information[12].

The data was analysed using descriptive analysis[13]. The researcher explained the Qibla direction of the mosque and the method used. Important facts about the calibration of the Qibla direction using different methods were recorded and analysed. The results of the analysis will be compared with the initial data on the Qibla direction of Al-Mujahidin-Parepare Mosque and the final findings will be concluded.

C. Resultsand Discussion

Results

The sun shadow method is used to determine the direction of the Qibla at the Al-Mujahidin Mosque in Parepare. This method involves observing the movement of the shadows cast by the sun to determine the direction that leads to the Kaaba in Makkah[14].In the process of determining the direction of the Qibla, a figure called Puang Halida was actively involved in the construction of the mosque and the determination of its Qibla direction. Although no

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official measurements were taken at the time of the mosque's construction, the direction of the Qibla of Al-Mujahidin Mosque is considered to be accurate and precise, as it has never changed since the mosque was built. This shows the importance of determining the direction of the Qibla in the construction of a mosque, and how the use of the sun's shadow method is an effective traditional way of determining the correct direction of worship for worshippers in the mosque[6].

After measuring the Qibla direction of the Al-Mujahidin Mosque in the city of Parepare using a theodolite,[15]the results showed an inclination of one and a half degrees. This result indicates that the Qibla direction of the mosque is not in the direction of the Kaaba in Makkah. The use of the theodolite as a method of measuring the direction of the Qibla proved to be more accurate and precise, providing more detailed and precise data compared to other methods[16].

Disscussion

1. Method of determining the Qibla direction of the Al-Mujahidin Mosque, Parepare City

The Al-Mujahidin Mosque in Parepare City, South Sulawesi, is a historic asset that symbolises the presence of Islam in the Wattang Bacukiki area. The mosque was built as a place of worship and a centre for religious activities for Muslims in Parepare. The existence of this mosque is evidence of the development of Islam in South Sulawesi and an important part of the historical and cultural heritage of Islam in this region[17].

Historically, this mosque was the first mosque built in Parepare town in 1906 AD and has a high historical value in the development of Islam in the Wattang Bacukiki region. The figure involved in the construction and determination of the direction of the Qibla of the mosque was Puang Halida, who played an important role in ensuring the accurate direction of the Qibla. Although several mosques in the area have changed their Qibla direction, the Al-Mujahidin Mosque has maintained its original Qibla direction since the beginning of Dutch colonisation. The mosque's Qibla direction was measured using the sun-shadow method, a traditional method that was commonly used in mosques in the past[18].

The decision to change the direction of the vaults or remodel the mosque building usually involves consultation and consensus among the Muslim communities involved. It is important to involve the community in decision-making about the Al-Mujahidin mosque to ensure that decisions are based on consensus and mutual interest[19].

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In addition, physical changes to the mosque building should take into account the historical, cultural and religious values associated with the mosque. Re-measuring the direction of the Qibla may be useful to determine the accuracy of the previous direction of the Qibla. If a change in Qibla direction is necessary, it is important to involve relevant parties, including religious leaders, experts and the community in the change process.

By studying the history of mosque construction in Indonesia, we can gain a deeper understanding of the journey of Islam in this country and the importance of mosques as an integral part of the identity of the Muslim community in Indonesia.

The method used to determine the Qibla direction of the Al-Mujahidin Mosque in Parepare City is based on two approaches, using the sun shadow and the use of a compass[20]. In this mosque, the figure involved in determining the Qibla direction is Puang Halide[19].

The use of the sun-shadow method is a traditional method that was commonly used in the past to determine the Qibla direction of mosques[21]. It involves observing the movement of the shadows cast by the sun to determine the direction of the Kaaba in Makkah [22]. In this way, the direction of the Qibla can be determined by observing the difference between the shadow cast by the sun at a given time and the position of the sun when it is over the Kaab[23]. This method usually requires knowledge and expertise in observing the sun's movement and calculating the exact direction [24].

In addition, the use of a compass is also used to determine the direction of the Qibla. The compass is a practical and commonly used tool for determining the direction of the Qibla in modern mosques[25]. The method is to place the compass on a flat surface, such as the floor or a table in the mosque,and adjust the compass needle until it points in the direction corresponding to the Qibla. The use of a compass makes it easy to determine the direction of the Qibla quickly and accurately, ensuring that Muslims can perform their prayers correctly[26].

Puang Halide is a figure involved in determining the Qibla direction of the Al-Mujahidin Mosque. He played an important role in determining the exact direction of the Qibla, which became the benchmark for Muslims to use when praying in the mosque. Puang Halide's involvement shows his contribution to building and strengthening the Muslim community in Parepare through the establishment of an important mosque. As a figure who was actively involved in the construction of the mosque, Puang Halide likely had specialised knowledge and expertise that helped in the construction and development of the mosque.

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Through the use of both traditional and modern methods, and the contribution of figures such as Puang Halide, the Al-Mujahidin Mosque of Parepare City has a precise and accurate Qibla direction, ensuring that Muslims can perform their prayers correctly and in accordance with Islamic guidance[27]. The existence of this mosque is clear evidence of the development of Islam in South Sulawesi and is an important part of the historical and cultural heritage of Islam in the region[22]. It is also concrete evidence of Indonesia's cultural and religious diversity.

2. Calibration of the Qibla Direction of the Al-Mujahidin Mosque, Parepare City

a. Qibla Direction Data and Hisab

Figure 1. Coordinates of the mosque location

Figure 1 showscoordinates of the mosque location.This data is obtained by searching for the coordinate location of Al-Mujahidin Mosque on Google Earth[28].

The coordinate data is as follows[29]:

1. Latitude of Al-Mujahidin Mosque (φ) = -4° 3’ 19” N
2. Longitude of Al-Mujahidin Mosque (λ) = 119°39’30” E
3. Latitude of the Kaaba (φ^k) = 21° 25′ 21.04″ N
4. Longitude of the Kaaba (λ^k) = 39° 50′ 34.33″ E

b. The Formula Used.[30]

First Model Formula[31]:

- Cotan B = Cotan b Sin a – Cos a Cotan C
- Tan B (B-U) = Cot b Sin a – Cos a Cot C
- Sin C TAN B= (1/TAN(b)*SIN(a))/SIN(C)-COS(a)*1/TAN(C)

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Second Model Formula[32]:

- Tan B (B-U) = (Cos LT Tan LM – Cos C * Sin LT)
- Sin C TAN B = (COS(LT)*TAN(LM)-COS(C)*SIN(LT)) / SIN(C)

Third Model Formula[33]:

- Tan B (B-U) = (Cos LT Tan LM) – Sin LT
- Sin C Tan C TAN B = (COS(LT)*TAN(LM)/SIN(C) – SIN(LT)/TAN(C).

c. Calculation Solving

Tan K = sin (λ – λk) / (cos φ x tan φk – sin φ x cos (λ – λk)).[34]

Tan K = sin (119°39’30” – 39° 49′ 34″) / (cos -4° 3’ 19” x tan 21° 25′ 21″ – sin -4° 3’ 19” x cos (119°39’30” – 39° 49′ 34″))

Tan K = 2.4087

K = Tan^{-1} 2.4087

K = 67.4536466033

K = 67˚ 27’ 13.13”

So, the Qibla direction of Al-Mujahidin Mosque (K) is 67˚ 27' 13.13" from the North point to the West point. To find the Qibla direction from the West point to the North point with the following formula: = 90˚ - K.= 90˚ - 67˚ 27' 13.13"= 22˚ 32' 46". So, the Qibla direction of Al-Mujahidin Mosque, Parepare City is 22˚ 32' 46".

To find the Qibla direction of the North-East-South and West points, we use other regulations, which are[35]:

UT-SB = 270˚ + (90˚-K)

e.g.: 270˚ + (90˚ - K)

UT-SB: 270˚ + (90 – 67˚ 27’ 13.13”)

= 292.54635277778

= 292˚ 32’ 46”

Thus, the North-East-South and West Qibla directions are 292˚ 32' 46" or this value is often referred to as the Qibla Azimuth value or the Qibla Direction Hisab value.

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d. Calibration of the Qibla direction of the Al-Mujahidin Mosque using a theodolite

1) Theodholite Adjustment.[36]

Set up the tripod carefully. Make sure that the three legs are carefully positioned at equal angles to form a balanced triangle. Also ensure that the underside of the tripod is completely flat for stable use. Use a sunlit location as a guide so that the tripod can be accurately positioned. If necessary, use a compass to ensure that the location is free of magnetic fields that could affect the measurements[16].

When the tripod is ready for use, carefully set the theodolite on it, making sure that it is positioned correctly and firmly. Then attach the lot or tripod to better support the use of the theodolite. With these steps completed, you are ready to make high precision measurements or observations using these tools[36].

The next step is to locate the centre of the tool. You can choose between two methods, using optics or a pendulum (plumb line). Also level the tool to ensure that the round nivo bubble and the tubular nivo are in the centre position, indicating that the tool is at the correct level. Check that the water indicator on the nivo is in the centre of the tube and remains stable without changing. To facilitate this process, level all three sides of the tripod. By levelling all sides, you will ensure the accuracy of the tube nivo setting so that it is in the centre of the circle[37].

The tube nivo plays an important role in controlling the balance and stability of the toolbox nivo. So make sure that these steps are carried out carefully to achieve accurate results when using the tool later[38].Remember to check the battery (there are two types of battery in the theodolite, the rechargeable battery and the AAA battery). Also, check that all parts of the theodolite are working properly.

2) Determining the sun's time angle[39]

The next step after the theodolite has been set up is to turn the theodolite on in a free, unlocked position. Photograph the sun using projection techniques or filters so as not to damage your eyes. Try to position the perfect sphere of the sun in the centre of the flat plane of its application. Record the time of the shot. Photograph the sun on the prepared clock.

The next step is to switch on the unit using the power button and look at the azimuth scale, which shows zero degrees. The next step is to compare the sun azimuth data you observed during the measurement with the astronomical data you prepared earlier. Use this

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sun azimuth data to determine true north in the following way: Rotate the theodolite according to the difference in azimuth numbers between the position of the Sun and True North recorded in your astronomical data[40].The first step is to lock the horizontal regulator of the instrument and adjust it until the HA (Horizontal Angle) position is 0˚ 0' 0". The next step is to determine the direction of the Qibla by turning the theodolite in the direction of the azimuth previously calculated as the desired direction of the Qibla[39].

Start by marking the two points you wish to connect using the equipment provided. Then connect the two points by forming a straight line, using the telescope tube or the laser on the theodolite to help[39].For marks elsewhere that have the same cubic size, you can use the mall system. The trick is to use a piece of paper and fold it according to the measurements you have taken. Once folded, you can use the paper as a guide to mark other places that have similar cubic sizes and angle directions. This will make your measuring and marking task more efficient and accurate.

3) Calculations to find the sun's time angle[21]

t = Sun’s Azimuth
WD = Region Time
e = equation of time
BD = Regional Longitude
BT = Longitude of Place

Declination of the Sun (δ) on Tuesday 13 June 2023 at 11:00 WITA = 23°13'12"
Equation of time (e) on Monday 13 June 2023 at 11:00 am WITA = -0h 6m 36s
Longitude of region (BD) = 120°.
Longitude of the place (BT) = 119°39'30"
Formula given:

t = 11°00' + (-0j 6m 36d) - (BD - BT) ÷ 15 - 12 = x 15

Enter the values in the formula[35]:

t = 11°00' + (-0h 6m 36s) - (120° - 119°39'30") ÷ 15 - 12 = x 15

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Count each part:

(120° - 119°39'30") ÷ 15 = (120 - 119 + (39/60) - (30/3600)) ÷ 15 = 0.6642 ÷ 15 = 0.0443
t = 11°00' – 0h 6m 36s - 0.0443 - 12 = x 15

Now, let's convert the angle into decimal format:[31]

t = 11 + 0 - 0.0443 - 12 = x 15
t = -0.0443 = x 15

Thus, the solar time angle is -0.0443 times 15, or approximately -0°39'39" = -0°39'39"

4) Determining the direction of the sun[41]

The formula is Cotan A = tan δ. cos φ X ÷ sin t - sin φ X ÷ tan t. Therefore, the data needed is:
Sun declination (δ) = 23°13'12"
Equation of time (e) = -0h 6m 36s
Latitude of Place (φ) = -4°3'19" N
Longitude of Place (λ) = 119°39'30" E

The formula given:

Cotan A = tan δ. cos φ X ÷ sin t – sin φ X ÷ tan t
Cotan A = tan 23°13'12". cos -4°3'19" ÷ sin -0h 6m 36s – sin -4°3'19" ÷ tan -0h 6m 36s

Now let's calculate each part of the formula:
tan (23°13'12") = 0.4343
cos (-4°3'19") = -0.9992
sin (-0h 6m 36s) = -0.0015
sin (-4°3'19") = -0.0699
tan (-0h 6m 36s) = -0.0015

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Cotan A = 0.4343. -0.9992 ÷ -0.0015 – (-0.0699 ÷ -0.0015)= 0.4340 ÷ -0.0015 + 46.6007
Cotan A = -289.3333 + 46.6007= -242.7326
= -1.22733 or -1°13’38.39” (U-T)

5) Determining the true north

In the morning, when measuring north declination, you can determine true north by subtracting the sun direction angle value from 360°.In the afternoon, if you are also measuring with a North declination, you can still use the same method to determine True North by subtracting the Sun Direction angle value from 360°.

However, if the measurement is taken in the morning with south declination, then a slightly different calculation needs to be made. You can determine True North by adding the solar bearing angle value to 180°.If the measurement is taken in the afternoon with south declination, you can still use the previous method by subtracting the angular value of the sun's direction from 180°.

Figure 2. True north direction

For example, if the calculation result in the morning and the south declination is 1°13'38.39", then the true north direction can be calculated as follows: 180° + 1°13'38.39" = 181°13'38.39 ". If the calculation result in the morning and the north declination is 1°13'38.39", then the true north direction will be: 360° - 1°13'38.39" = 358°46.21" as shown in Figure 2.

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The next step is to check the direction of the Qibla with the previous calculations. Using a teodolite lens, the time is determined at the position where the sun's shadow is perfectly round. The time recorded by the researcher was 11:00.Then lock the vertical theodolite, then turn the theodolite to true north 358°46'21". Then set the theodolite to 0°0'0" and turn it to the direction of the Qibla 292˚ 32' 46" from the North to the East or clockwise. The next step is to make the prayer vaults.

6) Calibration of prayer saf at Al-Mujahidin Mosque

Simulate the direction of the sun and determine true north using a theodolite or other accurate method.Switch on the theodolite and turn it to true north.Lock the vertical on the theodolite to keep the vertical angle stable. Switch off the theodolite after locking the vertical.Switch the theodolite back on and remove the vertical lock. Turn the theodolite in the direction of the previously calculated Qibla azimuth. Use the theodolite to make a guide line by pointing it through a rope or thread at the target you wish to mark, such as the floor of the mosque as seen in Figure 3.

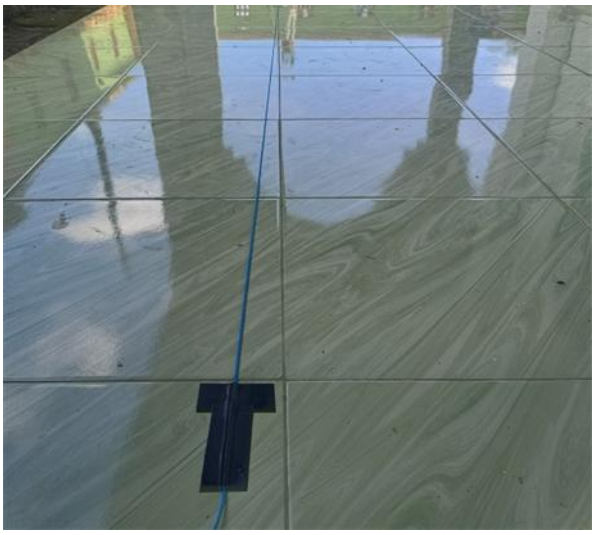

Figure 3. Straight line Qibla direction

Check that the theodolite's guide line matches the intended target as seen in Figure 4. If the guide line is suitable, you can use the rope to align it with the floor mall of the mosque.Adjust your position so that the guide line on the theodolite and the rope on the mosque floor mall match each other. in certain cases where the mosque floor has been

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installed, the method is to use a protractor to align the line.Once the guide line and the rope are aligned, you can use the line as a guide to organise the prayer safes.

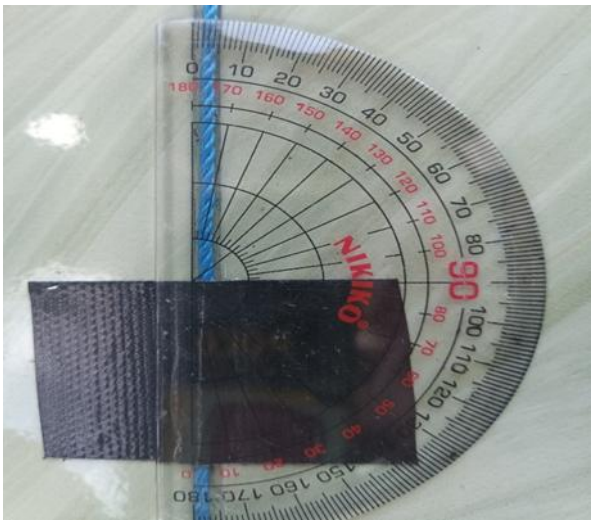

Figure 4. Checking the rope line and ceramic line

D. Conclusion

The Al-Mujahidin Mosque in Parepare City uses the method of observing the sun's shadow to determine the direction of the Qibla. This method involves observing the movement of shadows cast by the sun to determine the direction that leads to the Kaaba in Makkah. Puang Halida was a figure involved in the construction of the mosque and the determination of its Qibla direction. Although there was no official measurement when the mosque was built, the Qibla direction of the mosque is considered to have been measured as it has never changed since the mosque was built.

After measuring the Qibla direction using a theodolite, the Qibla direction of the Al-Mujahidin Mosque in the city of Parepare was calibrated. The results show that there is an inclination of one and a half degrees. This shows that the Qibla direction of the mosque does not face the Kaaba in Makkah. Using the theodolite as a measurement method provides greater accuracy and precision in determining the direction of the Qibla. Although there is a deviation in the Qibla direction of the mosque, it can still be tolerated within certain limits.

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