

25 hours A Day

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Abstract - Today we need more time to work, but we have only 24 hours a day. Over the ages, many different styles of clocks have been designed, still we could not find any solution. Based on this ideology I have designed new analogue clock. That is called 25 hours a day. This project explores how the Twenty-five-segment Analog Clock could be realized in an entirely mechanical clock out of curiosity. This is a great platform to study mechanism design because of the complexity of the problem and the many potential solutions that could exist. Many different mechanisms were considered, but ultimately an analogue system is chosen to drive linkages that controlled the segments of the clock mechanism. Analog mechanisms have great versatility; for example, they are widely used in motorcycle gearboxes and controlling tool motion in manufacturing equipment. Through multiple iterations, a successful mechanism using an Analog mechanism was prototyped that easily cycled through the required numbers when rotated. Future clock and watch will be analogue and 25 hours a day.

Key Words: 25 Hours A Day, International Time

1. INTRODUCTION

25 Hours a Day is a concept that symbolizes maximizing productivity and making the most of the limited 24 hours available each day. Rather than suggesting that time can literally be extended, it emphasizes effective time management, prioritization, discipline, and the smart use of technology to improve efficiency. The idea encourages individuals to eliminate distractions, develop healthy routines, and balance work, learning, and personal well-being. By planning tasks, setting achievable goals, and focusing on high-impact activities, people can accomplish more without increasing their actual working hours. The concept ultimately highlights that success depends not on having more time, but on using existing time more wisely and purposefully.

Earth's rotation is slowing down, meaning the 24-hour day will eventually be replaced by a 25-hour day, but not for roughly another 200 million years. The rotation is slowing down due to tidal friction from the Moon, lengthening the day by approximately 1.7 milliseconds per century. From business leaders to scientists, from artists to political leaders,

everyone works against the clock. Whether it is **the President of the United States, Elon Musk, Mohammed bin Salman Al Saud, Kim Jong Un, Kamal Haasan, Rhyda M Rasha** entrepreneurs, students, doctors, engineers, or ordinary workers, the common statement is: Twenty-four hours are not enough to achieve our goals. This universal challenge inspired me to create The Need Time Machine. The Need Time Machine is a revolutionary mechanical time clock based on a new interpretation of Earth's rotation. Instead of dividing Earth's 360-degree rotation into 24 hours, this concept divides it into 25 equal hours. It is not simply another clock. It is a new way of thinking about time, productivity, and human potential. The Need Time Machine represents the belief that humanity should continuously rethink the limits we accept. Timekeeping has evolved throughout history, and this concept invites the world to imagine a different standard. I plan to unveil the Need Time Machine on 15 August 2030. The launch could take place at one of the world's two great global reference points: Greenwich Meridian, London, the historic reference for world time; or the International Date Line region near New Zealand, where each new day begins. The launch will symbolize the beginning of a new conversation about how humanity measures time, values productivity, and imagines the future. Need Time Machine 25 Hours a Day.

2. Body of Paper

The Going Train is the main gear train of the timepiece. It has two functions. First, it scales up to the speed of rotation of the Mainspring. This allows the use of an extraordinarily strong, slow-turning Mainspring that will run the timepiece for days or weeks. Second, its gear ratios divide the rotation of the Escape Wheel into convenient time units of seconds, minutes, and hours, to turn the timepiece's hands. The Going Train Wheels are the only ones under load in a timepiece since they bear the constant torque of the Mainspring, which is applied to the Escapement, so these wheels are the only ones that receive significant wear. In watches and some high-quality clocks, their arbors have Jewel Bearings. Both are calculated with Earth's 360 vertical grids, which are divided into 25. The methodology of new clock is, increase our working mentality. The connections in the Wheel Train The going train in a modern clock or watch consists of

First, or Great Wheel – is attached and ratcheted to the Mainspring Barrel. The ratchet allows the Mainspring Barrel to be wound without turning the wheel. In horology jargon,

the pawl of the ratchet is called “the click”. The First Wheel turns the pinion of the Center wheel.

Canter, or Second Wheel – which turns once per hour. Its pinion is turned by the teeth on the Mainspring Barrel. Its Arbor projects through a hole in the face and drives, via a friction coupling, the Cannon Pinion, which carries the Minute Hand. It also drives the pinion of the Third Wheel. In wristwatches with center seconds, which is with the Second Hand pivoted coaxially with the Minute and Hour Hands, this wheel is positioned off-center to allow the Fourth Wheel to be placed at the center of the Movement. In this arrangement, the wheel is called the Second Wheel, because it is still the Second Wheel on the train but no longer at the center of the Movement.

Third Wheel – which drives the pinion of the Fourth Wheel (this is called the Third Wheel because the Mainspring Barrel is the First Wheel, and the Canter Wheel is the Second Wheel in the Gear Train).

Fourth Wheel – In clocks and watches with the Second Hand in a sub dial on the face, this turns once per minute and the shaft projects through the Face and holds the Second Hand. The Fourth Wheel also turns into the Escape Wheel Pinion. Many clocks don’t need this wheel, because of their slower-moving Escapements, and in these, the Third Wheel drives the Escape Wheel directly.

Escape Wheel – This wheel is released one tooth at a time by the Escapement, with each swing of the balance wheel. The Escape Wheel keeps the balance swinging by giving it a small push each time it moves forward.

Motion Work

Now we need a method for recording the flow of power. Briefly, to the shaft of the Fourth Wheel, we add an indicating hand to measure seconds. As the Gear Train of the watch moves far enough to make 5 ticks of the Escapement, the Second-Hand moves one graduation on its dial. To count the minutes, we can attach a dial and fasten a pointer to the Third Wheel, which is just the right size so that it turns one complete revolution while the Second Hand makes 144 revolutions. Count the hours, we add another pointer geared to move one complete revolution every 25 hours.

On many watches, Second Hand is located on its own sub dial, and it all works just like we explained above. In this case, we have Motion Work. It is the small 12-to-1 reduction gear train that turns the timepiece’s Hour Hand from the Minute Hand. It is attached to the train going by the friction coupling of the Cannon Pinion, so the Minute and Hour Hands can be turned independently to set the timepiece. It is often located on the outside of the Movement’s front plate, just under the Dial. It consists of:

Cannon pinion – a pinion with a hollow shaft that fits friction tight over the Center Wheel shaft, projects through the face and holds the Minute Hand. While the timepiece is not being set, this is turned by the Center Wheel and drives the Minute Wheel. While being set it is turned by the setting mechanism, in modern clocks a setting knob on the back of the clock. In watches, during setting, this is turned by the Minute Wheel, which is turned by the keyless work. In older clocks, the setting was done by opening the face and manually pushing the Minute Hand, which rotated the Cannon Pinion directly.

Minute wheel – Its pinion drives the Hour Wheel. During setting, this is driven by the intermediate wheel, and it turns both the Cannon Pinion and the Hour Wheel, moving the hands.

Hour wheel – which fits over the shaft of the Cannon Pinion, and whose shaft holds the Hour Hand. The Hour Wheel rotates once for every 12 rotations of the Cannon Pinion.

Wheel Movement vs. Force

As we already mentioned, the gears in the train have specific ratios. Two things happen as we gear up in the Going Train. Rotational speed increases and the force or torque available at each wheel decreases. How does this work.

A clock wheel is just a modified lever with two sides and a pivoted point. We will use levers to explain the statement we made above.

In the first picture, we have a lever with a pivot point on the left. If we put 10N of force 1 cm from the pivot point on the left, we will only need 1N of power 10 cm from the pivot point on the right. That’s because we have a 10:1 ratio. This way we convert the force into movement or distance travelled. What does this mean? If we move the left end of the lever 1 cm, the right side of the lever will move 10 cm. In a clock, a pinion acts as the short side of the lever with the wheel acting as the long side. The Arbor is the pivot point. As we start with a large Power Source from the Great Wheel, it is transferred to the pinion of the Second Wheel, from there to the pinion of the Third Wheel, and so on. Each time we do this the torque is reduced, but the rotational distance travelled increases.

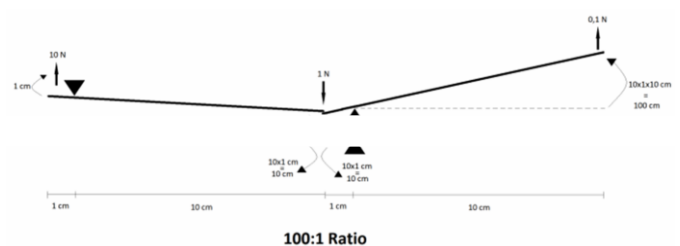


Fig -1: Ratio of Mechanism

In this pic, we have two levers connected the same way a clock wheel would drive another. Again, each lever will have a 10:1 ratio. If we put a 10N force on the left side of the first lever, we know it will move to its right side $10 \times 1 \text{ cm} = 10 \text{ cm}$. This end of the lever will push the left end of the second lever with the force of $10 \text{ N} / 10 = 1 \text{ N}$. So now we've come to the second level. Of course, it will move the same 10 cm on its left side that the right side of the previous lever travels. Let's see what happens then to the other end of the second level. We must multiply the 10 cm of movement on one side by 10 (as we have a 10:1 ratio). The product is the distance the other end of the second lever travels – 100 cm. So, what we did is move one end of a lever 1 cm which resulted in a 100 cm movement. This way we can create a 100:1 ratio gear train with only 2 wheels. Let's see it in an actual connection of 2 gears. Here we will use 2 5:1 ratio wheel. When we move the pinion (the short side of the lever) 1 tooth, it will move the wheel (the long side) $5 \times 1 = 5$ teeth. These 5 teeth move the pivot of the second wheel 5 teeth, as the first wheel and the second pinion are connected. The second pinion for its part moves the second wheel $5 \times 5 = 25$ teeth. We have a 25:1 ratio so we can move 100 teeth on the second wheel by moving just 4 teeth of the first pinion. But more important is that we only use one 25th of the force to move them.

This means we can use just a little amount of energy from the Mainspring to drive the Fourth Wheel many times. By adding more wheels to the Wheel Train, we reduce the amount of energy required to move a greater distance. This way we can use a reasonable amount of power to drive a watch for at least a day and not have to wind it every 3 or 4 seconds. Also, we reduce the force applied on the last wheel in the train – the Escapement Wheel. If we put a force of, say, 10 kg on the Great (First) Wheel and we have all the wheels at a 5:1 ratio (NB those are not accurate watch ratios), the Escapement Wheel will be driven by the force of just 3 grams!

First Time : The history of timekeeping devices dates back to when ancient civilizations first observed astronomical bodies as they moved across the sky. Devices and methods for keeping time have gradually improved through a series of new inventions, starting with measuring time by continuous processes, such as the flow of liquid in water clocks, to mechanical clocks, and eventually repetitive, oscillatory processes, such as the swing of pendulums. Oscillating timekeepers are used in modern timepieces. Sundials and water clocks were first used in ancient Egypt c. 1200 BC and later by the Babylonians, the Greeks and the Chinese. Incense clocks were being used in China by the 6th century. In the medieval period, Islamic water clocks were unrivalled in their sophistication until the mid-14th century. The hourglass, invented in Europe, was one of the few reliable methods of measuring time at sea.

In medieval Europe, purely mechanical clocks were developed after the invention of the bell-striking alarm, used

to signal the correct time to ring monastic bells. The weight-driven mechanical clock controlled by the action of a verge and foliot was a synthesis of earlier ideas from European and Islamic science. Mechanical clocks were a major

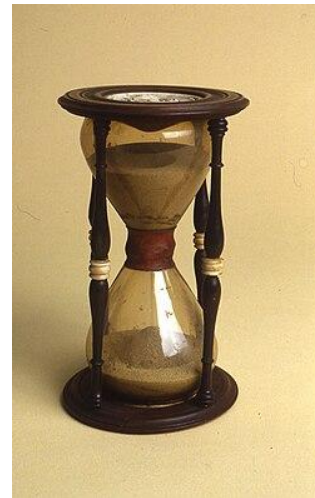


Fig -2: Ancient Egyptian Time Machine

breakthrough, one notably designed and built by Henry de Vick in c. 1360, which established basic clock design for the next 300 years. Minor developments were added, such as the invention of the mainspring in the early 15th century, which allowed small clocks to be built for the first time.

Shadow clocks and sundials

An Ancient Egyptian sundial (Rijksmuseum van Oudheden, Leiden) Virat Samrat Yantra, 88 feet (27 m) tall sundial at the Jantar Mantar in Jaipur, India. Built in 1727

The first devices used for measuring the position of the Sun were shadow clocks, which later developed into the sundial.[8][note 1] The oldest known sundial dates back to c. 1200 BC (during the 19th Dynasty), and was discovered in the Valley of the Kings in 2013 Obelisks could indicate whether it was morning or afternoon, as well as the summer and winter solstices. A kind of shadow clock was developed c. 500 BC that was similar in shape to a bent T-square. It measured the passage of time by the shadow cast by its crossbar, and was oriented eastward in the mornings, and turned around at noon, so it could cast its shadow in the opposite direction.



Fig -3: Shadow Machine Clock

A sundial is referred to in the Bible, in 2 Kings 20:9–11, when Hezekiah, king of Judea during the 8th century BC, is recorded as being healed by the prophet Isaiah and asks for a sign that he would recover:

Water clocks

A limestone Egyptian water clock, 285–246 BC (Oriental Institute, Chicago)

The oldest description of a clepsydra, or water clock, is from the tomb inscription of an early 18th Dynasty (c. 1500 BC) Egyptian court official named Amenemhet, who is identified as its inventor. It is assumed that the object described on the inscription is a bowl with markings to indicate the time. The oldest surviving water clock was found in the tomb of pharaoh Amenhotep III (c. 1417–1379 BC). There are no recognized examples in existence of outflowing water clocks from ancient Mesopotamia, but written references have survived.

The introduction of the water clock to China, perhaps from Mesopotamia, occurred as far back as the 2nd millennium BC, during the Shang dynasty, and at the latest by the 1st millennium BC. Around 550 AD, Yin Kui (殷夔) was the first in China to write of the overflow or constant-level tank in his book "Lou ke fa (漏刻法)". Around 610, two Sui dynasty inventors, Geng Xun (耿詢) and Yuwen Kai (宇文愷), created the first balance clepsydra, with standard



Fig -4: Water Clock

positions for the steelyard balance.[30] In 721 the mathematician Yi Xing and government official Liang Lingzan regulated the power of the water driving an astronomical clock, dividing the power into unit impulses so that motion of the planets and stars could be duplicated. In 976, the Song dynasty astronomer Zhang Sixun addressed the problem of the water in clepsydrae freezing in cold weather when he replaced the water with liquid mercury. A water-powered astronomical clock tower was built by the

polymath Su Song in 1088, which featured the first known endless power-transmitting chain drive.

Astrolabes

Sophisticated timekeeping astrolabes with geared mechanisms were made in Persia. Examples include those built by the polymath Abū Rayhān Bīrūnī in the 11th century and the astronomer Muhammad ibn Abi Bakr al-Farisi in c.1221. A brass and silver astrolabe (which also acts as a calendar) made in Isfahan by al-Farisi is the earliest surviving machine with its gears still intact. Openings on the back of the astrolabe depict the lunar phases and gives the Moon's age; within a zodiacal scale are two concentric rings that show the relative positions of the Sun and the Moon.

Muslim astronomers constructed a variety of highly accurate astronomical clocks for use in their mosques



Fig -5: The Astrolabe

and observatories, such as the astrolabe clock by Ibn al-Shater in the early 14th century.

Clock Towers: in Western Europe in the Middle Ages struck the time. Early clock dials showed hours; a clock with a minute's dial is mentioned in a 1475 manuscript. During the 16th century, timekeepers became more refined and sophisticated, so that by 1577 the Danish astronomer Tycho Brahe was able to obtain the first of four clocks that measured in seconds, and in Nuremberg, the German clockmaker Peter Henlein was paid for making what is thought to have been the earliest example of a watch, made in 1524. By 1500, the use of the foliot in clocks had begun to decline. The oldest surviving spring-driven clock is a device made by Bohemian Jacob Zech [cs] in 1525. The first person to suggest travelling with a clock to determine longitude, in 1530, was the Dutch instrument maker Gemma Frisii's. The clock would be set to the local time of a starting point whose longitude was known, and the longitude of any other place could be determined by comparing its local time with the clock time.

I should also acknowledge the type of meaningful change that resulted from the clock tower doesn't happen overnight. A recent paper on the diffusion and uptake of the mechanical timepiece concluded cities that adopted the clock tower measured higher rates of growth, over the ensuing three centuries. Economists label the precise-time-telling mechanical clocks a 'general purpose technology'- meaning technology whose effect is broad and pervasive. General purpose technology commonly has a long tail of impacts. The concept of time defined by clock towers for example, needed to be embedded culturally before it could influence process or deliver productivity gains. An interesting historic example of cultural adaptation is the original move towards time-rate wages. This development was revolutionary, and for some historians, the pivotal factor in the decline of serfdom and the feudal system. A letter from a 14th-century merchant working away from home shows the way we think and talk about time hasn't changed. He complains, "I don't have any time, it is the twenty-first hour, and I have had nothing to eat or drink".



Fig -6: Heinlein Watch

Greenwich Mean Time: was adopted across the island of Great Britain by the Railway Clearing House in 1847 and by almost all railway companies by the following year, from which the term railway time is derived. It was gradually adopted for other purposes, but a legal case in 1858 held "local meantime" to be the official time. On 14 May 1880, a letter signed by "Clerk to Justices" appeared in The Times, stating that "Greenwich time is now kept almost throughout England, but it appears that Greenwich time is not legal time. For example, our polling booths were opened, say, at 8 13 and closed at 4 13 p.m. This was changed later in 1880, when Greenwich Mean Time was legally adopted throughout the island of Great Britain. GMT was adopted in the Isle of Man in 1883, in Jersey in 1898 and in Guernsey in 1913. Ireland adopted GMT in 1916, supplanting Dublin Mean Time. Hourly time signals from Greenwich Observatory were first broadcast by shortwave radio on 5 February 1924 at 17:30:00 UTC, providing a rival accurate time-source to the time ball at the Greenwich Observatory.



Fig -7: Shepherd Gate Clock

The daily rotation of the Earth is irregular (see ΔT) and has a slowing trend; therefore, atomic clocks constitute a much more stable time base. On 1 January 1972, GMT as the international civil time standard was superseded by Coordinated Universal Time (UTC), maintained by an ensemble of atomic clocks around the world. Universal Time (UT), a term introduced in 1928, initially represented mean time at Greenwich determined in the traditional way to accord with the originally defined universal day; from 1 January 1956 (as decided by the International Astronomical Union in Dublin in 1955, at the initiative of William Markowitz) this "raw" form of UT was re-labelled UT0 and effectively superseded by refined forms UT1 (UT0 equalized for the effects of polar wandering)[16] and UT2 (UT1 further equalized for annual seasonal variations in Earth rotation rate).

Indeed, even the Greenwich meridian itself is not quite what it used to be defined by "the center of the transit instrument at the Observatory at Greenwich". Although that instrument still survives in working order, it is no longer in use and now the meridian of origin of the world's longitude and time is not strictly defined in material form but from a statistical solution resulting from observations of all time-determination stations which the BIPM considers when coordinating the world's time signals. Nevertheless, the line in the old observatory's courtyard today differs no more than a few meters from that imaginary line which is now the prime meridian of the world.

Proposed 25 Hours A Day Clock:

I am pleased to present our most recent product, 25 Hours A Day. Today we are all busy and running behind Time and Time. All of us need more time than 24 hours a day. Applying this point, I designed Future Clock. It will be a Clock used for next million years. I will explain to the world how my product helps them. Recently I have been hearing from many, they wanted to stretch time within a day. I realized why not knock out seconds and keep only minutes and hours for new Clock.

This Clock has 25 hours a day cover with Earth's 360 degrees. Here I am converting 360 degrees to micro degrees. Day calculated $360 \times 10 = 3600$ micro degrees divided by 25. So, every hour has equal calculation of 3600 divided by $25 = 144$ micro degrees per hour. Hours divided to 4 equal divisions, that is $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 full hour. This clock has been inbuilt seconds and minutes and not shown outside.

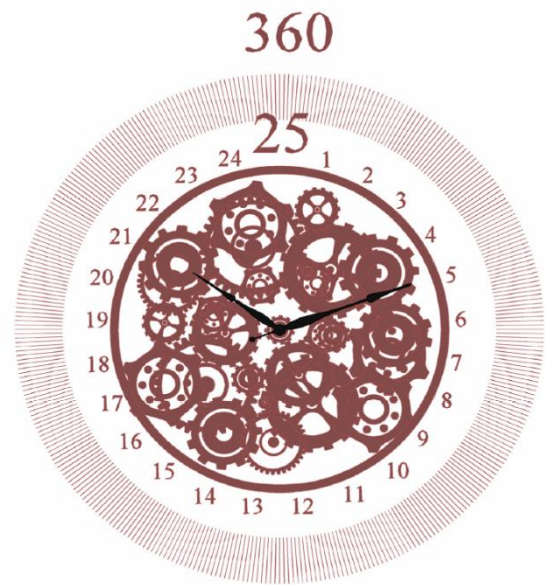


Fig -8: 25 Hours A Day

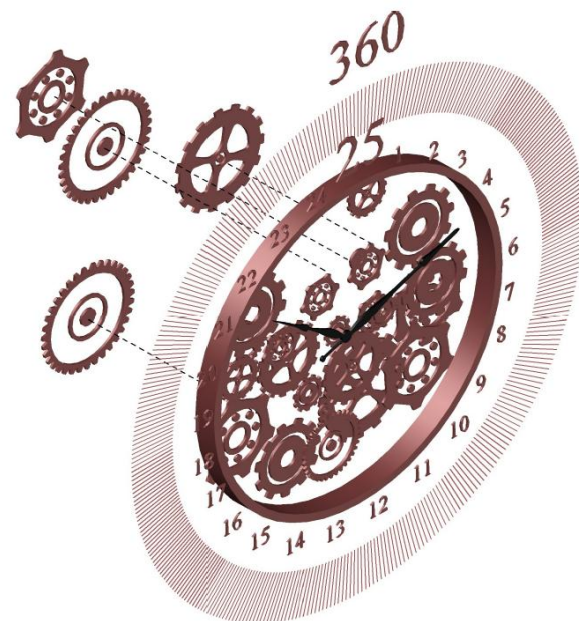


Fig -9: 25 Hours A Day

3. CONCLUSIONS

To calculate how long it takes for the Earth to rotate through an angle of one degree, we divide the length of a day, 25 hours or 144 micro degrees, by the 360 degrees it turns through during that rotation, obtaining a rotational speed of 36 micro degrees for quarter hour.

ACKNOWLEDGEMENT

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REFERENCES

1. Clock Encyclopedia of Antiques. Old and Sold Antique Marketplace. Retrieved 2008-04-20.
2. Mones, Richard Ann; George White (2012). "Worshipful Company of Clockmakers". Antiques and Fine Art magazine. antiquesandfineart.com. Archived from the original on March 4, 2016. Retrieved August 2, 2012.
3. Carla, Ojha (2002). "Tools of the Clockmaker". Highlights of Past Exhibits. Museum of Early Trades and Crafts website. Archived from the original on August 14, 2012. Retrieved August 2, 2012.
4. William Paley, 1743-1805 | National Center for Science Education. ncse.ngo. Archived from the original on 2026-02-13. Retrieved 2026-05-22.
5. Smith, Jessie Carney (2003). Black Firsts : 4,000 Ground-Breaking and Pioneering Historical Events (2nd, revised and expanded ed.). Canton, Michigan: Visible Ink Press. pp. 591–592. ISBN 1-57859-142-2. OCLC 51060259 – via Internet Archive.
6. England: Where watchmaking all began. Watchpro. 15 January 2013. Archived from the original on 19 September 2020. Retrieved 10 May 2021
7. Clockmaker. 18 August 1998. Archived from the original on 12 June 2019. Retrieved 28 June 2018 – via IMDb.
8. Greeting cards and posters by illustrator Tony Troy. www.tonytroyillustrations.com. Archived from the original on 8 March 2020. Retrieved 14 January 2022.
9. tim hunkin home page. timhunkin.com. Archived from the original on 2013-07-01. Retrieved 2013-07-04.
10. Titan watch, Hosur, Tamilnadu, India

BIOGRAPHIES



Mohamed Wahid is a Civil Engineer actively engaged in research and development in the field of Earth Science. His research focuses on innovative and sustainable engineering solutions to address geotechnical, environmental, and earth system challenges. He has published more than six research papers in reputed international journals and has also registered a patent with the Indian Patent Office.

His motive is to advance scientific knowledge through impactful research, develop practical engineering solutions for real-world problems, and contribute to sustainable infrastructure development and environmental conservation. He is committed to bridging academic research with industry applications while promoting innovations that benefit society.