



# Madurai Tech Matters

Newsletter Published By Madurai Tech Community(MTC)



# Madurai: A promising start-up hub

***"Alone we can do so little; together we can do so much"***

- Helen Keller

**Madurai**, known by various names such as, *The Athens Of The East*, *Jasmine City*, and *The City That Never Sleeps* is not new to private sector companies. It has been home to some of the best-in-class manufacturing and automotive companies for several decades. The prestigious TVS group, Fenner, Hi-Tech Arai, Aruna Alloys are some of the notable names.

During the next wave, several tech focused organizations built their base in Madurai. Honeywell Technology Solutions, the American conglomerate in the aerospace engineering placed its faith in the city by opening its 2nd engineering and R&D centre in India in 2002. This came as a collaboration with the Thiagarajar College of Engineering's Business Incubation unit.

Around the same time, Dot Com Infoway, Chella Software and several other tech focused start-ups blossomed and became the pioneers in building the tech ecosystem. The Tamil Nadu Government's decision to set up ELCOT SEZs near Mattuthavani Ring Road and Vadapalanji signalled its intent to provide a boost to the growing tech ecosystem. The ELCOT IT Park near Mattuthavani now hosts as many as 20 companies as its occupants and it is growing rapidly with companies like Neeyamo expanding their footprint aggressively.

## Why should Madurai be considered by a start-up or enterprise as a viable base location?

Madurai is the 3rd largest city in Tamil Nadu in terms of population and as a city it has recorded history from as early as 3 BCE. The roots of Madurai are so deep that it has evolved and transformed across centuries. This quality can be observed in its people, which is an important trait for building and growing businesses.

Madurai also has a thriving trading ecosystem. It has been and still is the main commercial centre for people living in neighbouring villages, towns and cities of the South Tamil Nadu region. This makes it a fertile ground to assess the viability of new business concepts and nurture them.

From resources standpoint, there are more than 40+ arts & science colleges and engineering colleges in and around Madurai which produce a large talent pool for organizations. The incubation units at colleges such as Thiagarajar College of Engineering train students and promote entrepreneurship.

Another critical aspect that makes Madurai the destination for starting up business is its connectivity to other major hubs. The city has a fully functional airport with connections to major Indian metros such as Chennai, Bangalore, Mumbai and Hyderabad and international destinations such as Dubai and Colombo. The city also has very good road connectivity

to Chennai, Bangalore and the port city Tuticorin for easy transit. In addition to more than 12 trains to Chennai, it has good rail connectivity to several major cities all over India.

Several industry associations that are active in Madurai enable entrepreneurs to network with peers and to seek guidance. Some of the noteworthy ones are the CII-Tamil Nadu Southern Regional Hub, MADITSSIA, the Tamil Nadu Chamber of Commerce and the Madurai Management Association.

With major metros suffering from a gamut of quality-of-life challenges and people looking to move to tier 2 and tier 3 cities, this is a golden chance for companies in and around Madurai to come together and build a brand for Madurai as the promising city to start a new business or establish the next tech centre.

Madurai Tech Community (MTC) proudly participates in the journey of making Madurai a desirable destination for business, with its various initiatives aimed at bringing students and industries together.

***Together, we can achieve more for Madurai.***



# inside

**4**  
Engineering Mammoths of  
Madurai

**8**  
New age Engineering &  
Tech Giants

**14**  
New Age Software Service  
Companies

**17**  
Madurai's start-up pride - JioVio  
HealthCare

**20**  
Educational Institutions and  
Start-up Ecosystems

**24**  
Madurai's Flourishing  
Communities and Organizations

**28**  
Thoonga Nagaram's Tech  
Events of 2022-23



**34**  
Madurai Individuals In Focus

**38**  
About us  
Madurai Tech Community  
(MTC)

# Engineering Mammoths of Madurai



Photo by: Keith H, Cambridge. Source: <https://flic.kr/p/6bV4Hd>

The TVS group, which has its origin and headquarters in Madurai, began as a small business selling bicycle parts at the turn of the last century. Since then, it has grown into a pan-Indian presence with a diverse portfolio of businesses in the automotive, auto components, finance, and electronics industries.

Today, the TVS Group has expanded its corporate portfolio into more than 50 companies and established a brand reputation and credibility associated with each product they make. The scions of TV Sundaram Iyengar and the next generation, have seamlessly carried over expanding their businesses in the most ethical

---

**TVS was founded in Madurai in 1911**

---

way with which it was founded, a century before.

Who would have thought, a single bus transport company is now a premier in Auto financing of Trucks and Buses and their manufacturing companies make the wheels, axles, brakes, auto-electrical systems, Engine mounts and seals, aluminium die-cast parts for the automotive industries in India.

The group has a presence in over 60 countries and employs more than 40,000 people worldwide. While the TVS Group's origins are in Madurai, the group has established a presence in several cities across India, including Bangalore, Chennai, and Pune, which are known for their thriving



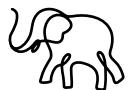
technology ecosystems.

As a pioneer and being actively involved in corporate social responsibility initiatives, they continue to focus on education, healthcare and environmental sustainability. The TVS School is synonymous with the schooling domain in Madurai with a privately run and managed institution and another government funded institution. Many alumni from these two institutions occupy the business suites in various multinational organizations, and many others' presence can be seen in all walks of life that is reverberating in Madurai.

The TVS Group has demonstrated a strong ability to adapt to the rapid changes in technology, particularly in the automotive sector where they are a major player. The group

has invested heavily in research and development to stay ahead of the curve and has successfully developed several innovative products in recent years. The Group has shown a strong commitment to innovation and technology adoption, which has helped it stay competitive in the ever-evolving business landscape.

While the TVS Group has expanded its operations beyond Madurai and established their presence in several other cities, it continues to maintain its commitment to its home base and has leveraged its expertise and resources in Madurai to drive growth and innovation across the group.



# JK Fenner

Fenner Cockill Limited started as a subsidiary company of Madura Coats in 1955. Fenner was acquired by the JK Organization in 1987. JK Organization is a 130-year-old business conglomerate with more than 5 Billion USD turnover and employs more than 40,000 people. J.K.Tyre and J.K.Paper are the common brands known to many. JK Fenner operates 2 state-of-the-art manufacturing units in Madurai - one in Kochadai that employs over 1000 people and another one at SIPCOT Nilakottai that employs over 300 people. They also have three other manufacturing plants, one in Chennai and two in Hyderabad.

---

Fenner, the 68 years old company is into Industry 4.0

---

Fenner Cockill Limited was started for the purpose of producing power transmission belts. Madura Coats provided some of the raw materials required and nearby Kerala produced the required raw rubber. Now, JK Fenner produces a wide range of products and providing power transmission solutions, sealing solutions, and fluid transfer solutions for automotive, industrial and agricultural segments. The 68-year-old company has adapted Industry 4.0 (4IR) concepts and the digitalization journey of its manufacturing units is in progress.

Dinesh, the Asst. Vice President of Operations, shared with MTC how JK Fenner has carried out a digitalization of its production operations over time. JK Fenner



Photos of Boomi Pooja in 1955 and the shop floor in the 1975 period



Aerial view of JK Fenner plant at Kochadai, Madurai, standing at the same place since 1955



Aerial view of JK Fenner plant at SIPCOT, Nilakottai, about 40km from Madurai



is not new to digitalization. They introduced computers as early as 1985. The SAP ERP system was introduced in 2002 and SAP HANA upgrade happened in 2022. 2021 saw the introduction of IoT in the Dealer Management System and Warehouse Management System. The phase 1 of 4IR's shift was piloted at JK Fenner in one production line.

Dinesh shared his experiences of the company's digitalization journey. When the implementation of 4IR started about 3 years ago, the solutions created had about 20% understanding gaps. It took 6 months for users to adapt to the new systems, processes and practices.

The ownership and acceptance of the systems came from the shop floor, and they were in the driving seat. The management was very supportive when errors happened. Being positive and moving on with the next best step rather than fretting over failure helped them to progress. "Communication, communication, communication", says Dinesh, is the key to success.

JK Fenner is partnering with Siemens for 4IR and with E&Y for SAP solutions. Niche players are also adding to JK Fenner's digitalization journey with their services. JK Fenner has invested Rs. 6 crores in the last two years at the Madurai plant on digitalization

services and devices.

The results are tangible. Asset utilization is better now. There is a seamless flow of communication from procurement to final finish of the product. Realtime data makes decision making very easy. Efficiency improved by about 15 to 20%. Overall Equipment Effectiveness (OE) was at 69-70% before 4IR and it is now at 82%. All of these prove the advantages of digitalization.

## Hi-Tech Arai

B.T. Bangera, the managing director of Hi-Tech Arai is a walking, talking management book with solutions for all the management problems. He keeps his doors wide open for anyone requiring his support. He believes in empowering employees, and nurturing them along with their families. Hi-Tech Arai manufactures automotive parts such as oil seals, valve stem seals, O Rings, moulded rubber components and Reed valve Assemblies, etc., in their manufacturing units that are spread out in 4 locations in Madurai. The head office is at Chokkikulam.

Hi-Tech Arai's rise to profit and glory was not an easy journey. Hi-Tech Ancillaries was established in 1985 by R. Lakshminarayan. Later, a technical tie up was established with Arai Seisakusho Co. Ltd., of Japan. The company struggled in the beginning and it was in red. When Lakshminarayan asked B.T. Bangera to lead the company, Bangera accepted it

as he believed strongly that the company had huge potential. When Bangera started his management journey, there were 75 employees. Soon he led it to profit and it is standing tall now with a turnover of Rs. 654 crores.

### TURBO CHARGER



Some of the Products manufactured by Hi-Tech Arai



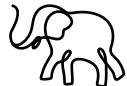
Oil Seals



O-Rings



Reed Valve Assembly



# New Age Engineering & Tech Giants



Designed by Freepik <https://www.freepik.com>

[Click here for footer image credit](#)

Madurai Tech Matters



Aravind Eye Care Hospital founded by Dr. Govindappa Venkataswamy (known as Dr. V), is known to everyone in Madurai. Their vision is to eliminate needless blindness. What is not widely known is that, when they strived to achieve their vision, Madurai became the first place in India to use Cobots for industrial automation. Cobots are Collaborative Robots that can co-exist with humans and work, whereas Robots need fencing.

Aravind Eye care Hospital had a challenge. The Inter Ocular Lens (IOL) used in Cataract surgery was very costly. Dr. V wanted to solve it. Dr. V wanted high quality ophthalmic products affordable and accessible for the vision impaired worldwide. Thus, Aurolab was born. In 1992, Aurolab was started with 10 women employees, who were nurses. Today Aurolab employs more than 1000 people - all women teams - from rural areas who have completed 10th or 12th grade in schools.

Starting with IOL, they soon found themselves in a need to manufacture drugs that are crucial, but low in demand. Making such drugs doesn't make any commercial sense to pharmaceutical companies, but Aurolab could produce such drugs at affordable rates for consumers starting 1996. Then came suture needles under the production line of Aurolab in 1998. Their journey so far was dependent on knowledge from manufacturers in the USA, Germany and other developed countries. But by 2005, Aurolab had gained manufacturing expertise and they produced surgical blades totally indigenously. The automation at Aurolab started



Aurolab employee monitoring Cobot operations at Aurolab manufacturing plant in Veerapanjan, Madurai

in 2011.

Sriram, Managing Director of Aurolab shared the organization's technology journey with MTC. When running the third shift with women employees became a challenge, they looked at automating the 3rd shift. In 2011, Ramnath - a mechanical engineer at Aurolab explored options for solutions. He identified a partner to collaborate with and

---

Aurolab exports its Made-in-Madurai ophthalmic products to 160 countries

---

develop applications for robots. An automation firm from Pune had provided solutions for such applications with Cobots. A further exploration of Cobots with Universal Robots made them decide that it was the right fit for the job. It was a huge feat with ROI standing at 7 years. Yet, they ventured into it, driven by the need to produce low cost, high quality ophthalmic products. Madurai became the first place in India to use Cobots for automation in the manufacturing industry.

It was challenging to interface

Cobot with the lathe. The Cobots came with a touch screen as a Human Machine Interface. An Automation firm known as "GI India Automation" from Pune had integration experience between the Cobot and the lathe machine. However, getting the inputs from the Aurolab's lathe machine proved to be a challenging task. Aurolab's technical team researched and developed an electronic circuit board to connect their existing lathe machines with GI's intermediate system. The Cobots helped in improving the quality and quantity of the products manufactured, and also made working with the machines easier for the women employees. They no longer needed to stand continuously.

Sriram, who is also an engineer, has been the driving force to introduce the required technologies and processes to continually improve the production quality and quantity with lower costs. Cost is always a major factor for Aurolab, not to compete with business competitors, but to make ophthalmic products affordable for everyone. Aurolab embraced Total Productive Maintenance (TPM) ideals that are common in the Automobile industry. One of the tenets of TPM - fact-based-decision-making - required real



data. To get the aforementioned data and to improve the efficiency of production operations, Aurolab introduced IoT to their manufacturing unit in 2022. With IoT monitoring the production line and the associated web application displaying the real time data, measurement of production

dimensions and fact-based decisions have become feasible.

Aurolab exports its Made-in-Madurai ophthalmic products to 160 countries. 10% of the IOL units produced worldwide is produced in Madurai, in the single manufacturing unit of Aurolab.

Technology has been instrumental in achieving Dr. V's vision of eliminating-needless-blindness. MTC considers Aurolab to be the epitome of Madurai's pride.

## HCLTech | Supercharging Progress™

**HCL Tech**, Madurai, started its operation in 2016 and employs 6500+ strong IT professionals in its world class office space in Madurai ELCOT IT Park. HCLTech Madurai delivers Engineering R&D, Infrastructure and digital services to BFSI, Life science, Healthcare, Media, Entertainment, Telecom

and Gaming.

In addition to regular employees, the campus also has the students of the TechBee program. TechBee is India's first-of-its-kind program which offers 12 months of training and assured jobs on successful completion of the training to students right after Class XII.

HCLTech is the most sought after employer by Madurai techies. Public events hosted in the HCLTech Madurai campus attracts

flocks of students. It is also a fun time for students who relish posting pictures on social media after such events.

The culture tag line at HCL Tech Madurai is 'Namma Madurai, Namma HCL'. People at HCL Tech Madurai take pride in working for one of the Madurai's best tech companies with world class infrastructure while being closer to their families.

## Honeywell

**Honeywell Technology Solutions (HTS)** celebrated its 20-year anniversary of its operations in 2022. Madurai offices are in the premises of the Thiagarajar Incubation Centre and in the ELCOT IT Park. Honeywell is a global business head quartered in the USA. HTS is also present in other Indian cities namely Bengaluru, Hyderabad and Gurugram. HTS globally works on its business verticals: Aerospace, Building Technologies, Performance Materials and Technologies, Safety & Productivity Solutions. The Madurai centre primarily works on the Aerospace and Building Technologies businesses. Times of India published last year that HTS' Engineering and Technology development arm is

planning to expand into Madurai and make it a centre of excellence in sustainability initiatives. The Madurai head count is expected to expand by 40%.

HTS Madurai is engaged in projects on NLP insertion into avionics systems such as the VAFD (Voice Activated Flight Deck) and on Audio Video on Demand for the cabin.

HTS Madurai can find local talents

to fulfil its 90% resource needs, including talents on AI, ML and NLP.

HTS is a prestigious place to work in Madurai. A person working in HTS receives an aura of engineering supremacy among friends. The work ambience is liked by the employees as the environment is conducive to work, creativity and growth.



**Gofrugal** is a digital-first company offering cloud and mobile ERP solutions to Retail, Restaurant, and Distribution businesses. Established in 2004, Gofrugal helps businesses embrace agility and transform digitally to stay competitive in the dynamic market. Primary vision of Gofrugal is to empower businesses with robust digital solutions that can be implemented with minimal staff, least skills, and 100% accurate and reliable results, which will in turn help the small and medium-sized businesses streamline their operations and improve productivity.

Headquartered in Chennai, Gofrugal has multiple office locations across India, including in cities like Hyderabad, Madurai, Mumbai, and Kolkata. The latest addition in March 2023, is a new office opened in Noida. The company has grown to serve more than 30,000 customers across the globe, specifically in India, Southeast Asia, Africa, and the Middle East.

Gofrugal's founder and CEO, Mr. Kumar Vembu, envisions a huge need for digital transformation in growing businesses across different retail, restaurant, and distribution verticals and aims to take up this opportunity enthusiastically to create awareness and offer customized solutions for each industry.

To tap the customer potential of southern parts of Tamil Nadu and to leverage growing tech talent in tier 2 and 3 locations, Gofrugal launched its development centre



Gofrugal, Madurai employees & office



in Madurai in September 2019. With a current employee strength of 100+ at Madurai, Gofrugal aims to grow its talent pool in this region and there is 10x potential for Gofrugal's solutions to expand and reach more customers in the region.

As a leading provider of business management software for small and medium-sized enterprises (SMEs) in India, Gofrugal already has 500+ small business customers in Madurai and aims to empower Madurai's retailers to advance their digital capabilities. Mr. Kumar Vembu believes, "The tier 2 cities are finally ready to be the tech hotspot, and we consider this as our small contribution towards nation-building by spotting hidden talents in rural areas and nurturing them to be contributing

professionals.

Gofrugal is one of the first companies to integrate its ERP with Open Network for Digital Commerce (ONDC), a government initiative in India aimed at promoting digital commerce and creating a level playing field for all participants, such as sellers, buyers, and delivery partners in the e-commerce ecosystem. ONDC gives equitable opportunities for all participants and democratizes the e-commerce ecosystem to a level playing field. Gofrugal has already onboarded 100+ customers across 40+ cities to ONDC, helping them effectively utilize the network, regardless of their size or level of technological sophistication.





**Sri Mookambika Infosolutions - A Happiest Minds company** had its humble beginning in Sivakasi, about 80 km south west of Madurai with 4 employees in

2006. It was founded by M. P. Selvaganesh . SMI has more than 400 employees in Madurai. In January 2023, Happiest Minds announced that it'll acquire SMI for Rs. 111 crores in all cash deal. Happiest Minds is led by Ashok Soota who is one of the co-founders of Mindtree Ltd. The Happiest Minds is a publicly traded listed company with a market capitalization of Rs. 12000

crores and more than 3300 employees.

SMI considers its employees as one family and that makes the teams work without stress. SMI's core business is in enterprise application services such as Mobility Solutions, DevOps Services, Quality Assurance, System Integrations and on Internet of Things.



You'll be motivated to believe in yourself on entering Zoho's Incubation Hall, at Poigaikaraipatti, Madurai. The above Thirukural highlighting the rewards achieved by one's effort, hard work and perseverance as against the limiting circumstances is displayed in Zoho premises. Swami Vivekananda's quote "All power is within you; you can do anything and everything" is displayed there, making you believe in your potential.

Zoho stands for Z(S)mall Office Home Office. The Zoho Corporation was founded by the visionary Sridhar Vembu in 1996. His model of doing work from tier 2 cities and rural areas proved to be the best model when the COVID-19 pandemic hit the world in 2020. Sridhar Vembu views a company as a mechanism to produce something useful and a journey that is to be enjoyed. His view is that the leaders of a company should inspire people rather than adhering to dress code and other superficial formalities borrowed from foreign lands. Sridhar Vembu believes - We have talents, we have done global trade 1000 years back with Romans and far east countries, and today we

## தெய்வத்தான் ஆகா தெனினும் முயற்சிதன் மெய்வருத்தக் கலை தரும்.

are capable of producing software, machineries at par with any other nation.

Founded on Sridhar's principles of taking work to the places where talent exists, Zoho follows the Hub and Spoke model of offices. Zoho's Madurai spoke offices are

currently operating in Thenur and Poigaikaraipatti and the hub office is coming up in Kappalur.

When Zoho started its operations in 2021 at Poigaikaraipatti, Madurai, around 25 people moved from Chennai to Madurai. The rest of the recruitments happened



Zoho, Poigaikaraipatti, Madurai office - A session with Sivarama Krishnan Iswaran, Global Head - Zoho Finance & Operations Suite of Products



in and around Madurai from the local Engineering colleges and arts colleges. Zoho Madurai successfully trained a dozen people from Arts colleges and absorbed them as full time employees.

Balamurugan Natarajan, Product Manager of Zoho Subscriptions gave an exclusive interview to MTC. He shared with passion how freshers enter, learn and become productive contributors as employees. He shared his experiences with a batch of around 12 arts college graduates who joined the Madurai office for training. The way they are taught is through relatable examples and games. For example, the “tree” data structure was understood by

the students quite naturally, when they are asked to draw a family tree and find the முறை பெண் / கையன் (culturally accepted cousin to marry) through that tree. Learners get self motivated and learn effectively. They can join Zoho if expectations are met from both the ends.

Zoho Madurai now has over 200 employees. Zoho's product development is spread out across all its locations. People working in rural areas are not differentiated from metro cities in terms of pay or the type of work they do. The Madurai team contributes in product development, product support, and product marketing for Zoho Books, Zoho Invoice and

various other suite of products.

Meals and snacks are provided to the employees with local produce of the season and that may include jamuns and guava procured from weekly sandhai of Kadachanenthal. There is a CSR initiative called “Anbudan Zoho”, in which, they participate in the Madurai Azhagar festival and contribute food to visitors. Zoho takes pride in working within the existing ecosystem where core employees can pursue their dream in IT while their family members can continue to thrive in their established field of work.



Zoho, Madurai team at Go Rural Go Zoho Mini Marathon event on 2023 Republic Day from Poigaikaraipatti office



# New Age Software Service Companies



Photo by: Michael Kappel, Photo source: <https://flic.kr/p/f4NCPp>

Madurai Tech Matters



# SystimaNX IT Solutions Private Limited

SystimaNX started their business in 2009 and established it in Madurai in 2015. Today, they have offices in France apart from Madurai.

Their focus is to delight their clients by offering quality software development services. On the other hand, they also want to be an organisation that provides a quality work environment for their team.

They provide web development, mobile development, cloud infrastructure management and digital marketing services. Their team comprises of 30+ experts in PHP, Python, Full stack, Angular, Node JS, NuxtJS, UI / UX design, iOS, Android, and SEO/SEM.

With a vision to stay close to their roots, to develop technology skills among students in and around Madurai and to create



SystimaNX team

job opportunities to the talented youngsters, SystimaNX IT Solutions is on the path to building a dream organisation that both clients and employees love working with. When asked about advice for aspiring Madurai based entrepreneurs, Lakshmichandranth, the founder

& CEO of SystimaNX IT Solutions says, "They should be open-minded, and be ready to conduct tech sharing sessions to enable a growth focussed community."

Lakshmichandranth's & Ramesh's dream is to see Madurai become a go-to hub for start-ups in India to grow globally.

## Dot Com Infoway

Dot Com Infoway (DCI) is a globally recognized app development and marketing company. DCI has been a leader in creating user-centric, functional business & marketing solutions ever since they started in 2000. With a team of 150+ digital specialists, they offer services for mobile app development, website development, IoT app development, blockchain development, artificial intelligence, ChatBots, mobile app & games marketing, digital marketing, wallet integration and UI/UX design.

With over 20+ years of experience in IT industry, their goal is to create engaging apps that not only appeals to the mind but also connects with the heart. Their expertise includes developing



DCI Team

apps across platforms, including Android, iOS, and Windows for B2B and B2C companies.

They provide outcome focussed internet marketing services that often exceeds their client expectations. In addition, DCI also provides consulting and, auditing services for the various aspects of online presence and provides digital marketing services that

boost businesses. App marketing is another domain that they specialize in to help start-ups in reaching users.

Some of their marquee clients include Sony Music, Motorola, IPL, ICC, Amazon India, ByteDance, Marriott, Alcatel, Triad, Tradeasia, HIPSTO, Mamamia, and Tymedia.



# AgamWorks Tech Solutions Private Limited

AgamWorks is a software services & software product development company founded by Thirunavukarasu Chellapa in 2018. Its business operations started in Madurai as it is a business hub with huge potentials in terms

of opportunities, talents and connectivity.

According to Thiru, Madurai has a huge potential for growth and to become equal with metro cities such as Chennai. The top three things he is focusing on in his venture are the culture of the organization, early adoption of tools and technologies, and sustainability as the long term

focus.

According to Thiru, better Infrastructure, affordable office spaces, co-working spaces across the city, in addition to networking within the existing tech companies are the factors that will make Madurai as the favourite destination for business and industry setup.

## HasoTechnology

HasoTechnology is full-stack development digital solution company. They deliver custom software and mobile apps, perform software testing, carry out in-depth analyses and provide support and maintenance services. They have 20+ software specialists who have expertise in the MEAN and LAMP stacks and Hybrid Applications development.

Haso Technology was founded by Dilip Kumar in 2015. He considers himself blessed for running his venture in his native place. One of the challenges he faces is in retaining senior talent who prefer to move to Chennai and Bangalore.

His advice for people starting up is to start small, not to hesitate to ask for help and to build a network with founders and experts in other companies.



HasoTechnology team having fun time partying

There are hundreds of small and big software services and products companies in Madurai. Some work on cutting edge technologies, some provide services to domestic and global clients to keep the business operations running.



# Madurai's start-up pride

## JioVio HealthCare



Senthil and Dhinesh displayed their innovation at Biotech expo inaugurated by Prime Minister Narendra Modi and organized by Biotechnology Industry Research Assistance Council (BIRAC).

Madurai Tech Matters

**Senthil Kumar Murugesan, the CEO and Dhinesh Pandian the COO**, of JioVio are well known to the techies of Madurai. Their company JioVio started its journey with a definite, common problem to solve. The problem they had set their sights on was universal – applicable to a remote village in southern Tamil Nadu to a remote settlement in Indiana, USA. When Senthil saw his sister impatiently waiting for 3 hours to see a doctor for 3 minutes, not for any serious illness, but for a routine check-up during pregnancy, the solution popped in his head and JioVio was born. The first prototype was made in the summer of 2015.

JioVio provides personalized and predictive maternal care using AI, IoT and wearable technology. Allowear, AlloTricorder, AlloBMI and AlloBeat are JioVio's wearable products. AI Assistant is an AI based personal assistant which detects high-risk patients and sends alerts to doctors automatically.

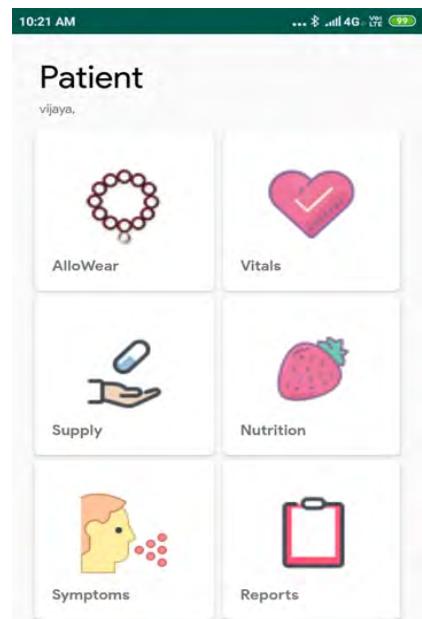
JioVio's successful product list did not get created in a day; a repeat cycle of prototyping, marketing, failing and learning, led to success. Some of the initial challenges were to deal with power requirements of the wearable devices and the lack of internet connectivity. The

devices in the initial days were required to be recharged every month. The rural women, the primary target of these wearables, did not do the recharge on time. To solve this problem, JioVio performed several hardware level optimisations - They removed the display since it consumed lot of the battery power. They implemented a new syncing protocol, and they increased the storage capacity of the device to reduce the frequency of syncing data. These helped in increasing the battery life from 1 month to up to 9 months. The lack of internet issue was resolved by making the device store data for a longer period and push the data to the internet when connectivity was available. Device size was another issue and that was overcome by optimizing PCB (Printed Circuit Board) designs. To take advantage of the placebo effect, the wearables are designed in the form of holy beads of necklaces and bracelets.

Finally, the hard work started paying off. As of Jan 2023 (since the beginning of the launch), 7320 high-risk moms were identified and saved globally; 36,400 mothers have delivered their healthy babies with the JioVio devices support, and 2,91,200 home based antenatal care check-ups are done.

Both Senthil and Dhinesh are

active in community activities too. Senthil actively engages in community empowerment and education initiatives especially for girls and young women through 'MetooMentor' a non-profit organization that teaches young women to innovate through technology. With a handful of dedicated volunteers, he has mentored more than 1000 girls in Madurai, and some of them have



JioVio Mobile App that works with the devices



AlloBMI

This system provides body weight, BMI, body fat ratio, body moisture, muscle mass, basal, metabolic rate and store the data to the cloud.



Allowear

A smart wearable device which continuously tracks activity, sleep cycle reminds to take medicine, checkup and that increases the interaction of patient.



AlloTricorder

Multi-functional health monitoring device designed as a modern world Tricorder which record basic vital signs such as Blood pressure, heart rate, ECG, blood oxygen, body temperature, Blood glucose.

JioVio products

gone on to win global competitions with his support. Currently, this community development initiative has evolved into one of the largest physical 'Meetup' communities in Tamil Nadu.

We live in an extremely well-connected period where technology based solutions can

be deployed anywhere. JioVio has also proven that their solutions can work internationally by implementing them in the USA . The tribal settlements in the state of Indiana needed this device as maternal mortality was high there.

In the startup world, Senthil and Dhinesh are the pride of Madurai.

They have proved that they can develop a technology based solution for a common problem locally and take it global. That too, they do it in style and get it recognized by WHO, Harvard Business Review (HBR) journal and the like!



Yi team supporting Madurai start-up product booth - JioVio Senthil & Dhinesh, along with HOD CII Franklin and EO Naganathan | Past Chairs Vijay Darshan, Kalyan | Chapter Co Chair Sevugan | Venue: CII Connect 2021, Chennai



# Educational Institutions & Start-up Ecosystems



Photo by: erikaow, source: <https://flic.kr/p/hScdbZ>

Madurai Tech Matters

## TCE and TBI

Thiagarajar College of Engineering(TCE), established in 1957, is a premier institution in South Tamil Nadu. TCE's vision is to provide world-class technical education while still holding strong ethical values. True to its founding vision, TCE continually improves its methods of imparting technical education. Dr. M. Palaninatharaja, TCE's principal, passionately shared with MTC how the institution is making their engineers well equipped for the industry.

TCE has introduced courses on topics such as lateral thinking, design thinking, and out of the box problem solving as part of the first semester syllabus. These courses prepare students to participate in competitions with confidence and leverage the benefits offered by the ecosystems conducting the competitions. Participation in competitions also help students to elaborate their ideas and gain domain and technology insights,

boosting their confidence.

A good number of successful start-ups are created based on such experiences. For example, a couple of students took up Extended Reality as their final year project and that has turned into a startup providing innovative, high tech, AR/VR educational aid for autistic children. Another example is a case where students attempted automating flower garlanding and it turned into a startup involved in mechanical industry automation.

As digitalization spreads, Palaninatharaja believes that students should not look for conventional opportunities to get employed, instead, they should look to solve new problems and provide new solutions. Students must explore, reach their full potential and reap the benefits for the societal well-being. Palaninatharaja thinks that, though the business setup process has been digitized currently in India, there is scope for further

simplification. He is of the view that such simplified processes will make more students take up entrepreneurship.

The Technology Business Incubator(TBI) was started in 2015 with the support of two government bodies: the Department of Science and Technology and the National Science & Technology Entrepreneurship Development Board (NSTEDB). It is an independent unit under the Thiagarajar group of institutions. Hence, the Thiagarajar College of Engineering and the Technology Business Incubator work together closely.

TBI has simplified entrepreneurship for the students with ambitious dreams. All one needs is a great idea and the perseverance to get it done. TBI's incubation steps are well defined, mature, open and proven. Once a person applies at <https://www.tce.edu/tbi>, they will be called for a discussion. Once the panel of professionals, industrialists and



MSME team visit at TS Srinivasan Centre for Automotive Research at TCE



other management stakeholders approve the idea and the business plan, the entrepreneur can set up an office at TBI centre.

A person running his startup at TBI can utilize office infrastructure suitable for technology work. Apart from basic infrastructure, e.g., power, internet facilities, air conditioning, and furniture, the entrepreneurs can use TCE's multiple Centres of Excellence (CoE), including the TS Srinivasan Centre for Automotive Research, Centre for testing and calibration, Environmental Information Centre, Advanced Research Centre, Antenna Testing Centre and many sophisticated department labs supported by several governmental and non-governmental agencies. The centres of excellence provide support in terms of equipment

and expertise for mentoring, testing and expression of the idea. Immanuel Akash, an Electronics Engineering graduate from Velammal College of Engineering and Technology works in the TBI facility. He elaborated on the need of CoE in simple terms. Long range Antenna research requires testing with far field simulation. Such simulation requires purpose-built infrastructure so that other commercial and government wireless communications are not disturbed. A CoE that provides infrastructure support and mentoring support helps to build an idea to a thriving business.

Sebin Sunny, the CEO of TBI, indicated to MTC that TBI has nurtured 32 start-ups - among which 18 are graduated and 14 are in incubation. MTC spoke to Adi

Narayanan of Archery Technocrat Pvt. Ltd., one of the currently incubating companies. Archery Technocrat is unique in a way that they used technology prowess available locally and found great customers in Madurai itself. They have used Honeywell's bar code readers and automated supply chain management solutions (inventory management, asset management etc.). The same solution is used by Madurai's veteran companies such as TVS and JK Fenner.

The entire value cycle was nurtured by TBI in Madurai.

<https://www.tce.edu/>  
<https://www.tce.edu/tbi/>

## PSY and CFIE

Centre For Innovation and Entrepreneurship (CFIE) is an MSME approved technology business incubator of Pandian Saraswathi Yadav Engineering College (PSY). PSY shared with MTC about the institution and the entrepreneurship facilities available for students.

CFIE has 16 start-ups in incubation stage, 20 mentors and 12 investors. CFIE has partnered with different startup ecosystem enablers like EDII, MSME, Native Lead, Maxelerator Foundation, IITM Incubation Cell, Startup Payanam, AIC Raise, TEDCO and Startupgrind. CFIE has a dedicated co working space of 8000 sq. ft., with fabrication lab, 3D printer, CNC cutter and makers space for start-ups to use. CFIE supports students in incubation networking, seed funding and industry connections.

Utilizing the innovation and start-



PSY students won StartupTN Healthcare Hackathon

up ecosystem, students of PSY have done projects that have the potential to be implemented globally. For example, the Plastic Paver Blocks made from waste plastics is a solution to reduce the impact of plastics on the environment.

PSY students also actively

participate in startup events and hackathons with the enthusiastic support from the management.

<https://cfie.business.site/>  
<http://psyec.edu.in/>



## SCE & Solamalai Knowledge Park

Solamalai College of Engineering (SCE) has created a network for strengthening research, innovation and entrepreneurship related activities among students and faculty members called Solamalai Innovation and Incubation Lab (SiIL).

Solamalai Knowledge Park offers office space and co-working spaces for start-ups, professionals, IT companies and training academies. Total carpet area of 21000 sq. ft. is available with 24x7 power backup, security and parking facilities.

Solamalai College of Engineering

actively hosts and participates in events that are beneficial to the community and students. Some of the notable events are

- 1) Played the role of hosting partner for Madurai Hackathon 2022
- 2) Along with Unnat Bharat Abhiyan, conducted AR & VR workshops to enhance learning outcomes for Government primary school in Andarkottaram)
- 3) Held The Founders Cafe event in partnership with Nativelead.

The Research and Innovation Committee of SCE organizes seminars, webinars, workshops, idea competitions and deliberations on the latest research. Every year, on 28th Feb, Science and Expo Day is celebrated and 15th Sep

Engineer's Day is celebrated with the Innovative Project Contests.

e-Yantra Robotics Laboratory started at SCE in 2018. e-Yantra is a project sponsored by the Ministry of Human Resource Development (MHRD) through the National Mission on Education through ICT (NMEICT) program and supported by IIT Bombay. The SCE-eYantra robotics lab provides encouragement to the students to get exposed to the field of robotics and makes them industry ready.

<http://www.solamalaice.ac.in/>



Young Indians collaborated with Native Lead and organized Arambam 8.0 - Solamalai team won 1st prize with cash award of Rs.20,000 in Nov 2022.



# Madurai's Flourishing Communities and Organizations



Above image source: International Press Telecommunications Council (IPTC); Footer [Image by kreativkolors on Freepik](#)



Madurai Tech Matters



Sep, 2022: Vivek Raja and Neetu Mallan taking about AWS UG Madurai at AWS APAC Community Summit, Thailand

It is said in general that if you ask a Madurai local for a route, the Madurai local will come all the way and drop you at the location where you want to be. Madurai people are known for their friendly nature. This culture and friendly nature are evident in the Madurai based tech communities and organizations too. In the last decade, Madurai has seen various communities, forums and organizations take shape at various levels and scale. Many success stories have emerged out of such community activities.

## AWS User Group (AWS UG)

**Madurai** started in February 2022. Apart from knowledge sharing sessions, AWS also runs boot camps for aspiring AWS Cloud Practitioners. They have a study group for students and professionals pursuing certificates. Vivek Raja, founder of the AWS UG Madurai community and Neetu Mallan, an active organizer

of the community, attended the AWS APAC Community Summit '22 at Bangkok Thailand on September-15 and 16 where more than a 300 community leaders and 80+ heroes from AWS user Groups got together from APAC Region. In the summit, Vivek Raja won "Invent and Simplify" Community Award and the community got nominated for "Best User Group" award.

**Google Developer Group's** Madurai chapter is lead by Senthilkumar, the founder and CEO of JioVio. They have conducted large events for knowledge Sharing with more than 300 participants congregating for a full day.

**DigitAll** takes pride that it was inaugurated by former President APJ Abdul Kalam. DigitAll was started in 2015. It is a forum that works on imparting digital knowledge to the common man, run by TN Chamber foundation

and supported by TN Chamber.

**The Cyber Crawler (tCc.)** was started in 2022 by Harisuthan, Thiru, Mohan and Varsha. All of them did their post graduation in cyber forensics from Madras University. The tCc. community plans to operate across Tamil Nadu. They observed that many cyber security related conferences happen in Bangalore, Delhi, Pune, etc., with papers submitted based on deep and complex technological work. When they didn't come across any similar technical conferences on cyber security in Tamil Nadu, they started the tCc community. This community creates free resources as blogs and articles and publishes the same on their web site. They have published more than 40 articles on their website. All of these are free resources available for anyone to consume.



## Following are some of the communities and organizations that Maduraiites can explore

Community name	Organizers	Main activity	Information channel
AWS User Group Madurai	Vivek Raja P S, VP Product, NexStem ( <a href="https://nexstem.ai">https://nexstem.ai</a> )  Maheswarakumar Muthusamy, Consultant HCL  Neetu Mallan, DevOps Manager, EZOPS Inc	Knowledge sharing sessions	"AWS UG Madurai" at slack. <a href="https://bit.ly/joinawsmdu">https://bit.ly/joinawsmdu</a>
Azure Users Group	Vivek Raja P S, VP Product, NexStem ( <a href="https://nexstem.ai">https://nexstem.ai</a> )	Knowledge sharing sessions	<a href="https://www.meetup.com/azure-developer-community-madurai/">https://www.meetup.com/azure-developer-community-madurai/</a>
DigitAll	J. K. Muthu	Running workshops and events to impart digital knowledge to the common man.	<a href="https://digitallindia.org/">https://digitallindia.org/</a>
Google Developer Group (GDG)	Vijaybharathi, Senthilkumar Murgesan	Knowledge sharing sessions and workshops	<a href="https://www.meetup.com/makersmadurai/">https://www.meetup.com/makersmadurai/</a>  <a href="https://www.facebook.com/gdg-Maduraipage">https://www.facebook.com/gdg-Maduraipage</a>
Madurai Microsoft User Group	Swyed Shanu	Knowledge sharing events	<a href="https://www.linkedin.com/groups/14118418/">https://www.linkedin.com/groups/14118418/</a>
Madurai Tech Community	Details are given in separate section		<a href="https://www.madurai-tech.org/">https://www.madurai-tech.org/</a>
the Cyber Crawler	Harisuthan	Knowledge sharing sessions, publishing knowledge resources such as blogs and papers	<a href="https://www.thecybercrawler.com/">https://www.thecybercrawler.com/</a>



**Apart from the above go-easy modern age communities, there are other established organizations that operate from Madurai.**

**Nativelead Foundation** was launched as a co-creational platform for promoting and supporting new-age entrepreneurs in Madurai and other parts of southern Tamil Nadu in 2012. Sivarajah Ramanathan, founder of Nativelead is the CEO of TANSIM (Tamil Nadu Startup and Innovation Mission) – a Tamil Nadu Government organization under the MSME). Nativelead runs investor connection meets, organizes exhibitions and provides mentorships.

<https://nativelead.org/> ; <https://www.facebook.com/Nativeleadofficial>

**Startupgrind** is the world's largest startup community. It has an active presence in Madurai and they have conducted many startup pitch events and partnered with Madurai Tech Community to run Madurai Hackathon 2022. Baskar Perumal, the Chapter Director and Sharmila Devi Pounraj, the Chapter Co-Director organize events that provide motivation, mentorship, and guidance to the emerging entrepreneurs of the region.

<https://www.startupgrind.com/madurai/>

**Young Indians** is an arm of the Confederation of Indian Industry meant for Indian youth. CII's goal is to develop Indian industry and to ensure that government and society, understand both the needs of industry and its contribution to the nation's well being. Sharmila Devi Pounraj, Chair of Young Indians, Madurai Chapter shared with Madurai Tech Community that they will organize Hackathons for schools and colleges along with other partners to nurture the local youth towards entrepreneurship and professional success.

<https://www.facebook.com/Yimadurai/>

**Software Industries Development Association (SIDA)** organizes conferences and exhibitions with the purpose to connect and improvise the software industry of Madurai. SIDA is a membership based organization. Software companies, institutions and students can subscribe to membership in SIDA.

<https://sidatn.org/>

**StartupTN's Madurai Regional Hub**, runs "Aadu Kalam" pitching events across Tamil Nadu and provides startup funds and, mentorship to take ideas and develop them into a successful business.

<https://startuptn.in/regional-hubs/#madurai>

**Nasscom** has started promoting tier 2 and 3 cities. Their Madurai based activities are yet to be known. Nasscom being involved in Policy advocacy and industry development, Madurai may not be missed in their tier 2 cities development plan.

<https://nasscom.in/>



# Thoonga Nagaram's Tech Events of 2022-23

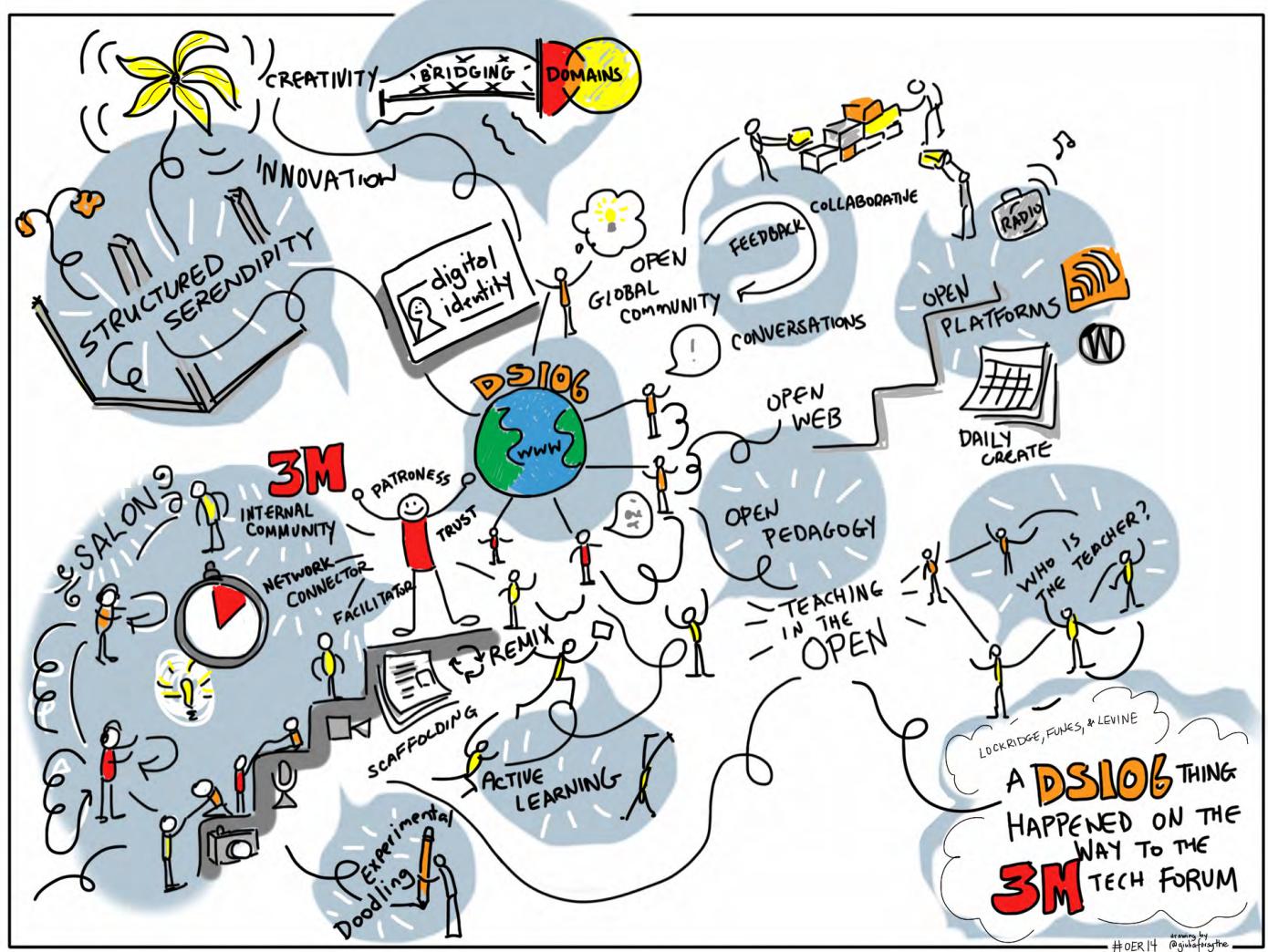


Photo source: <https://www.flickr.com/photos/gforsythe/12835769453>

Madurai Tech Matters

## Jul 2022

<b>Event</b>	Google I/O Extended, Madurai
<b>Venue</b>	HCL Technologies, ELCOT IT Park, Madurai
<b>Organizer</b>	Google Developer's Group



This event was attended by 150 persons offline at HCL Technologies office premises and there were online participants too. At this event, Evangeline Daniel, Senior Program Manager of Google spoke about the cloud career opportunities. It was an eye opener for many of the young graduates and students entering into the IT industry.

## Aug 2022

<b>Event</b>	Madurai Hackathon 2022
<b>Venue</b>	Solamalai College of Engineering, Madurai
<b>Organizer</b>	Madurai Tech Community (Details are added in a separate section)

## Aug 2022

<b>Event</b>	Microsoft Most Valuable Professionals (MVPs) meet
<b>Venue</b>	HCL Technologies, Madurai
<b>Organizer</b>	Madurai Microsoft User Group

Microsoft recognized MVPs were invited to share their knowledge on Microsoft technologies such as .NET, Azure cloud services, etc.

Sep 2022

&

Nov 2022

**Event** Madurai Microsoft User Group (Knowledge Sharing)

**Venue** Madurai Kamaraj University College, Tallakulam

**Organizer** Microsoft User Group

Knowledge sharing on Microsoft cognitive services, DevOps and containerization were done in Sep 2022 and Nov 2022.

Oct 2022

**Event** Google Cloud Community Day

**Venue** Royal Court, Madurai

**Organizer** Google Developer Group



Google Cloud Community Day 2022 was a full day event with packed sessions. It had 240+ Participants, 8 Speakers and about 15 organizers and volunteers.

## Oct 2022

<b>Event</b>	Hacktoberfest Participation
<b>Venue</b>	SystimaNX IT Solutions Pvt. Ltd., Chinna Chokkikulam
<b>Organizer</b>	Madurai Tech Community



Participants were introduced to Open source contributions by creating sample projects. Hacktoberst is an event organized by DigitalOcean and it attracts global participants.

## Nov 2022

<b>Event</b>	Connect Madurai 2022
<b>Venue</b>	Courtyard by Marriot, K.Pudur
<b>Organizer</b>	Confederation of Indian Industry (CII) Southern Region

As this was organized by established entity CII, the event was embraced by local IT players. It ran with the theme “IT’s from Madurai to the World”. In this event start-ups and entrepreneurs demonstrated their work.

Nov 2022

Event	GDG Madurai's devfest2022
Venue	Hotel Tamil Nadu, Madurai
Organizer	Google Developer Group



As there was space limitation Probably this was the biggest tech event of the year. Madurai's devfest2022 attracted 1400+ registrations with 720+ Professionals and the rest were students. As there was space limitation, only 330 participants were invited.

The keynote address was given by StartupTN CEO Sivarajah Ramanathan over video. It served as the event's opening act. The Developer Keynote was delivered by Amrit Sanjeev. Bala Krishna from Sri Mookambika Infosolutions had been invited to speak about the "IT Ecosystem in Madurai".

6 Google Developer Experts came next and delivered rich technical content. Sathish VJ, Kamesh Sampath, Rivu Chakraborty, Adit Lal, Rushabh Vasa and Sanju S delivered a session on Google Cloud, Big Query, Jetpack compose and Kotlin. There were additional tech sessions on IoT on Google cloud and Tensor flow.

One of the event's highlights was an All women Panel discussion on "Break the Bias" participated by Sharmila Devi Pounraj - Chair of Young Indians Madurai, Vimala L from Madurai Tech Community, Venkadeswari from Nativelead and Priyadarshini - founder of Clarisco Solutions. Audience gave their full attention to this session.

The event closed with two Student Startup pitch sessions.

## Dec 2022

<b>Event</b>	the Cyber Crawler meet
<b>Venue</b>	Hotel President, Yanaikal
<b>Organizer</b>	the Cyber Crawler



A team of cyber security enthusiasts - Harisuthan, Gowtham Nesamani, Santhosh Duraipandian, Jo Praveen and Priya Murali, delivered lectures and demo on hacking, cyber security diagnostic tools, the common pitfalls that lead to cyber attacks, etc. This meet was self funded and organized by Harisuthan and other professionals to instill interest in cyber security domain. The sessions had a full capacity of 85 participants.

The events covered here are based on the input received from MTC volunteers who attended these events. Post your tech and start-up events at MTC's telegram channel <https://t.me/+F8BQWhke034wZDhl> for MTC to know about your events and cover the same in the next impression of Madurai Tech Matters newsletter.

# Madurai Individuals In Focus



Photo source: <https://www.flickr.com/photos/halderman/29024556805/>

Madurai Tech Matters

## Vivek Raja P S

Vivek graduated from Mepco Schlenk Engineering College. We are yet to find anyone who has attended and won as many hackathons as he did in his student years. Vivek has attended over 70 hackathons and won over 20 of them - international, national and local included, with the special one being winning the Smart India Hackathon 2019.

Vivek is now working as VP of Product, NexStem. NexStem was founded by Siddhant Dangi and Deepansh Goyal from BITS Pilani in 2020. Vivek Raja P S joined the company the same year as a Data Scientist and Cloud Architect. NexStem is based in the US and has operations in Bengaluru with a team of 12 members. The company recently received funding from angel investors such as BITS Spark and Indian internet company InfoEdge.

What is exciting about NexStem

is the area they have chosen to delve into. NexStem offers a cost-effective solution for neuroscientists, researchers and Brain-Computer Interface (BCI) product teams with its medical-grade signal quality and easy-to-develop-on EEG hardware and software. Onboard computation, automated electrode adjustments and the ability to connect to multiple biosensors make conducting and commercializing research more efficient, and the NexStem bciStore allows for quick marketing and distribution. NexStem won the first-place award for "Augmented Entertainment" at the Groupe Les Echos-Le Parisien Tech Awards at Viva Technology in Paris in, 2022. Vivek Raja and Deepansh Goyal received the award.

Vivek is an active community contributor for Madurai. He is the founder and lead organizer of AWS User Group Madurai and Azure Developer Community (Chennai, Madurai, Coimbatore).

Vivek is also an active blogger on DEV community and publishes his projects in github. Vivek won "Invent and Simplify" community award at AWS APAC Community Leaders Summit 2022 for his innovative methods of creating community value in tier 2 cities.

His research interests have lead him to explore technologies in depth and he has 2 patents to his credit.

Vivek's DEV community handle: <https://dev.to/vivek0712>

github handle: <https://github.com/vivek0712>



Left: Vivek Raja P S giving a product pitch about NexStem EEG headset and WisdomSDK at Viva Technology 2022, Paris; Right: Vivek Raja at aws APAC community summit

## Dr. Tamilselvi

Dr. Tamilselvi is working as a Professor & Associate Dean in the Information Technology department of Thiagarajar College of Engineering, Madurai. Tamilselvi did her Ph.D., thesis on the topic "Agent Based Mobile Robots Navigation" and since then it has become the starting point of a promising technology based teaching aid for autistic children.

This research led Tamilselvi and her students to explore the usage of robots for education of children with special needs, in 2014. The initial ideation, learning and exploration took a couple of years and then in 2016, they could demonstrate the solution.

The initial version of the solution intended to teach social learning to autistic children in the absence of a teacher. For example, the robot will be in the class room and it will remind the children to say hello to their friend. This project has helped the team understand how children will respond to technology based teaching. Tamilselvi and the team understood that autistic children learn more through visuals and real life experiences than through basic audio inputs. This project didn't deliver the expected output, but gave the team valuable information for the next step.

Augmented Reality (AR) came as the next natural choice to improvise the solution. Developing this project required a thorough understanding of the learning resources available, therapies and teaching methods. Interacting with doctors, teachers, parents and children helped them to understand the ins and outs of the ecosystem. The Rehabilitation Council of India (RCI) provides a unique syllabus for teaching special children. It uses Picture Exchange Communication System



Dr. Tamilselvi with her students

(PECS) placards with visuals. These visuals are converted into AR model and the solution was included with animations and voices. For example, this solution will show an elephant with animation and sound while the name is written in the background. This solution was more effective, however, students were still getting distracted and the intended level of attention was missing. Then, they realized that children were sitting in the real world, but looking at digital objects, causing them to become distracted.

Virtual Reality (VR) was introduced as the next step. Google Cardboard (low cost VR) was used with "Unreal" game-development-software to create a VR based solution. This model brings real world exploration to the children. For example, using this solution a child can experience mountains, oceans and various creatures; VR based learning reduced distraction to a large amount and the children are now more engaged in learning. Tamilselvi and her team have finally

achieved their intended result. Now, the problem is that children will not be able to command or feel the objects and that will be fixed in upcoming releases.

Tamilselvi received a research grant from the DST – CSRI (Department of Science and Technology – Cognitive Science Research Initiative) of 33 lakhs in 2018 and that contributed to the success of the project. The money helped in buying VR/AR equipments and high end systems with advanced graphic cards. The Unity game development software and the open-source Blender 3D modelling software are used in producing the solution.

Many of Tamilselvi's students contributed their hard work and enthusiastic effort. The students - Sai Naveena Shri, Bhavani Devi, Priyadarshini – were significant contributors. What's more, a patent is pending on this solution.

## Dr. Vasan Churchill

Dr. Vasan graduated in Mechanical Engineering from Thiagarajar College of Engineering, Madurai, then did his masters at IIT Delhi and got his PhD, from the University of Delaware. He wanted to cover both experimental and theoretical aspects in his thesis with a focus on the manufacturing, materials and mechanical aspects of carbon nanotube based advanced composite materials. After his PhD in 2011, he joined General Electric's Global Research Laboratory in Bangalore, India, where he applied his research to drive value in an industrial setting. He then came across a job offering which suited his deep interest in advanced manufacturing processes and that took him to Sweden.

He joined the Research Institutes of Sweden, which is a government institution focused on providing applied solutions to industry. They act as a bridge between industry and research institutions. It was a perfect research ground for his engineering interests. He worked on many projects - high temperature composites for aero engines, hybrid metal-plastic joints for high strength applications, and upscaling of manufacturing processes for novel batteries were some examples.

In 2015, in one of those projects, he came across 3D printing or additive manufacturing (AM), and he became deeply interested in it. It became so interesting for him that he called it as "addictive manufacturing".

He built his own machine and kept on finding new applications for the process. He was selected for an innovation grant from the Swedish Government for the topic "3D printing of battery materials". He was also curious about printing large parts using robots. Vasan along with his colleague worked

on an European innovation project, and they were provided grants to pursue their idea in 2020. They delivered software solutions that simplified the 3D printing process using robots. Their customers were excited and they encouraged them transform the solution into a startup. Along with 3 co-founders – Emil Johansson, Guénolé Bras and Henri Bernard, Vasan started ADAXIS in January 2021.

AdaOne, ADAXIS' software platform, supports 3D printing using metals, plastics, composites and concrete. The advanced path planning of AdaOne enhances the functionality of robotic 3D printers. AdaOne leverages the six degrees of freedom of robot for path planning of complex geometries and simplifying the user workflow. ADAXIS helps their users reimagine the potential of industrial robots as 3D printers. The software is scalable and can program robots of any size, enabling a printable volume of up to tens of cubic meters. This capability gives companies the power they need to set up local and on-demand production of highly advanced parts, reducing the need for storage, transportation, and logistics. ADAXIS is also

developing support for hybrid machine tools which combine both additive and subtractive heads. Hybrid machines are gaining popularity worldwide.

ADAXIS currently has more than 60 customers across Europe and Americas, and ADAXIS is expanding rapidly. They have customers from diverse domains such as aerospace, automotive, marine and construction. ADAXIS users print with various materials like metals, polymers - unfilled & reinforced, and concrete using various processes. ADAXIS is robot agnostic and supports various brands including ABB, KUKA, FANUC and YASKAWA. ADAXIS is continuously integrating as many robot brands as possible in the market. ADAXIS is excited to expand their horizons in India, the Middle East and other APAC countries by exploring new business opportunities for the large scale additive manufacturing of polymers, metals, and concrete.

Vasan is now based in Bangalore as he can be in close proximity with his customers and partners. He sincerely wishes for the day he can move his Business seamlessly from Bangalore to Madurai.



Dr. Vasan with various large scale polymer based parts printed using ADAXIS' AdaOne software and robot.

# About us

## Madurai Tech Community (MTC)



Madurai Tech Matters

Madurai Tech Community(MTC) is a 100% volunteer driven community focused on technology usage for societal benefit. MTC's core objective is to leverage the strength of its community members' technical, industry and business knowledge for the benefit of the society around us. The majority of the community members hail from Madurai and are passionate about bringing change to Madurai by leveraging technology.

Some of the key activities that the community drives include but not limited to,

- Conducting knowledge sharing sessions and enabling discussions on new technologies
- Conducting Hackathons, Demo Days, Startup Events, Job Fairs, Mentorship for start-ups etc.
- Providing opportunities for businesses to connect with clients
- Enabling opportunities for individuals looking to freelance or get a job
- Act as a platform for networking among technology professionals, freelancers, start-ups, established businesses, educational institutions and students

Madurai Tech Community conducted Madurai Hackathon 2022 from 12 to 14, August 2022 at the Solamalai College of Engineering in partnership with Solamalai Institutions, Young Indians and Startupgrind. More than 170 students from 16 institutions and organizations participated in a 48 hour hackathon solving smart city themed problems. Kumar Vembu, the CEO and founder of Gofrugal inaugurated the Madurai Tech Community and the Madurai Hackathon. Students who attended the hackathon had a wonderful



Madurai Tech Community and Madurai Hackathon 2022 inaugurated by Kumar Vembu on 12th August 2022 at Solamalai College of Engineering

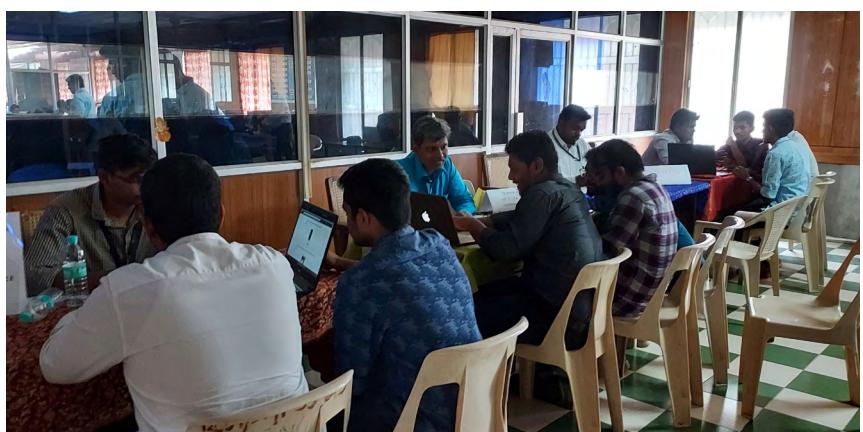
learning experience from the mentoring sessions. Prizes worth of INR 2 Lakhs were distributed to 46 students. The event was sponsored by the companies namely Aurolab, Hi-Tech Arai, Pay Huddle, DCI, WATSAN, SystimaNX and Greyfeathers. Local communities like the AWS UG Madurai and GDG Madurai joined hands to provide swags and support. Many individuals and the alumni groups of TCE and KLN colleges also provided cash contributions.

As mentoring is something students found very useful, MTC has started a mentoring channel for students on Discord. MTC is ready to connect students with mentors across the globe.

MTC organized mentoring for students who won Vizi-AI kit as a

prize in the Madurai Hackathon 2022. It was a full day session for the winners from Solamalai College of Engineering and Thiagarajar College of Engineering. MTC also organized a session to enable participation in Hacktoberfest. Hacktoberfest is a global virtual event organized by DigitalOcean to promote open source contributions.

A team of volunteers from MTC has contributed to make this newsletter as an attempt to make the technology and engineering prowess of Madurai widely known. Madurai is perceived by many as a big village and viability for doing technology business is considered less compared to Chennai, Bangalore or Coimbatore. Madurai Tech Community strives to dispel this misconception, in bringing this newsletter, by highlighting the technology and engineering



Madurai Hackathon 2022 Mentor sessions



Madurai Hackathon 2022 Awarding ceremony on 14th Aug 2022 at Solamalai College of Engineering Hackathon 2022  
Awarding ceremony on 14th Aug 2022 at Solamalai College of Engineering

implementations currently used in Madurai based Organizations, educational institutions, skills of the student community and support systems.

Improving Madurai's interior roads, regulating haphazard driving and unscrupulous parking, controlling encroachments on pathways and roads, containing stray cattle and animals, effectively disposing solid waste and building the mandatorily required hygiene infrastructure are key to attract businesses to Madurai. The volunteers of MTC believe in doing their small part in the technology area for a big change.

To quote Bharathi, the famous Tamil visionary poet, Madurai Tech community is confident of achieving the above worthy vision.



Madurai Hackathon 2022 winners celebration at Hotel Tamil Nadu, K. Pudur in Sep 2022



MTC Mentor Kannan doing full day workshop with winners of Vizi-AI kit from Thiagarajar College of Engineering and Solamalai College of Engineering students

நினைவு நல்லது  
வேண்டும்,  
நெருங்கின பொருள்  
கைப்பட வேண்டும்;  
கனவு மெய்ப்பட  
வேண்டும்,  
கைவசமாவது விரைவில்  
வேண்டும்;

## The MTC Volunteers who worked on bringing out this newsletter



Amirtha Nivas Chandramohan



David Edwin



Kala R  
Trustee - Madurai Tech Community



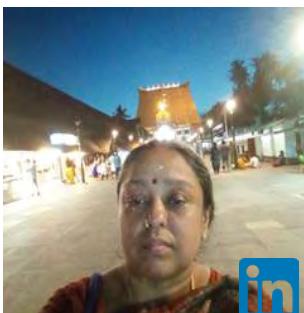
Krishna Kumar N (KK)



Maheswarakumar Muthusamy



Mutharasu Mohanraj



Rajlakshmi Krishnamurthi



Ramesh Ganesan  
Trustee - Madurai Tech Community



Vimala L  
Trustee - Madurai Tech Community

The contents for this impression have been collected by our volunteers through interviews and through the forms we published. Few information is used from the public domain as well. We thank all the companies, communities, institutions and individuals who have shared content with us. We value your feedback.

Reach us at [contact@madurai-tech.org](mailto:contact@madurai-tech.org)

We announce our events, call for volunteers, seek contents for our newsletter, etc., in our telegram channel. Join here: <https://t.me/+F8BQWhkeo34wZDhI>

Newsletter layout design by [RajeshKS](#).

Cover page design by [Parthasarathy](#)