**SHIFT**



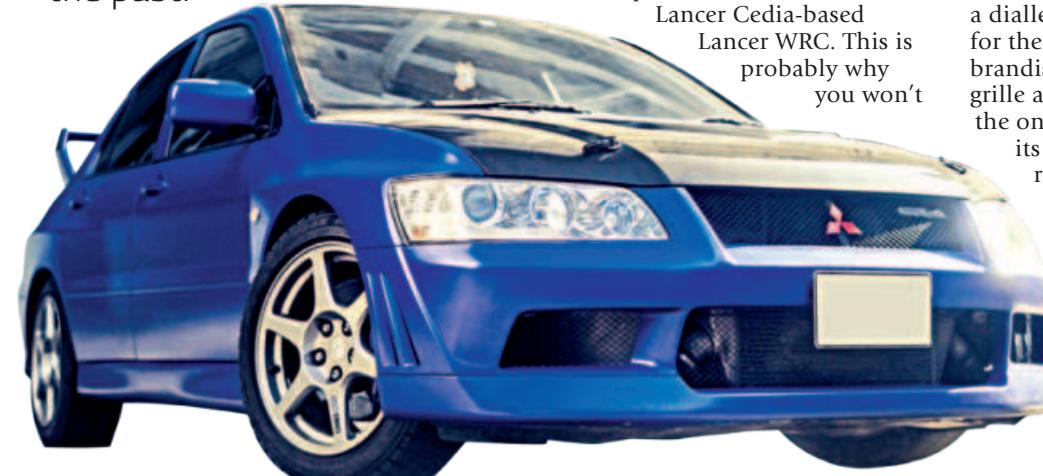## Survival of the fittest
# EVOLUTION

If you're asked to picture an Evo (short for Lancer Evolution), chances are you have conjured up a CT9A Lancer Evolution in your mind, that too in either red, green or white. The seventh iteration of the Lancer Evolution was a massive departure from the red thoroughbred rally cars of the past from the triple diamond marque, for it was based on the back then, newly introduced Lancer Cedia, which looked nothing like the Lancers of the past.

However, the CT9A cemented itself onto our consciousness to be synonymous with the word 'Lancer Evolution' despite being lamented as of late 2016 and out of 10 generations.

Change is hard. And that was certainly the case with Evolution VII as the newly christened rally car for the road received lukewarm reactions from fans. Fast and Furious movies definitely helped ease the transition as a bright green Evolution VII with a wing received significant screen time, and did the same later with a bright red Evolution VIII with a wing. Although the Lancer Evolution would have done just fine without the stardom it gained throughout the years from the Fast and Furious franchise. These cars usually raced on a Sunday and sold on Monday, as Mitsubishi had motorsport pedigree in abundance.

The 2001 World Rally Championship (WRC) saw Mitsubishi enter two different generations of the homologated Lancer Evolution due to complicated contracts Ralliart (Mitsubishi's motorsport wing) was under with the FIA. Both the outgoing CP9A Evolution 6.5 and the newly developed and WRC christened, Lancer Cedia-based Lancer WRC. This is probably why you won't



see pictures of the later iterations of the CT9A as the Lancer WRC competed till as late as 2007 with little to no success.

Meanwhile, the road-going Evolution 7 shared the majority of its interior and trim components with the base Lancer. While the arches were flared and boxy, true to Evolutions of the past, the arches were wider than ever before, and the trunk spoiler was larger than ever. The turbocharged 4G63 power train was updated in terms of torque, while horsepower was capped at 276 due to the infamous gentleman's agreement between Japanese auto manufacturers. In reality, most performance cars made

power well above the agreed threshold.

2001 was a year of many firsts for the Mitsubishi brand, for they offered a dialled down automatic Evolution for the first time. The Tiptronic Evo brandished the 'GT-A' badge on the grille and on the trunk, which wasn't the only distinguishing feature from its manual variants. The interior received chrome trims throughout the door handles and the tachometer, while the elephant in the room was the 5-speed automatic gear shifter. The seats were plusher than the hardcore Recaro in the other car. The GT-A also received a different steering wheel and a tachometer to house the PRNDL gauges, which many fans would say was quite ugly.

Meanwhile, the bumpers were different from the GSR, as the GT-A had a nostril-less front bumper, a sleeker hood with no meshed scoop for added ventilation, and a shortened trunk, therefore, boot.



While the clear tail lamps are a dead giveaway while distinguishing a GT-A. The GT-A, therefore, was a viable daily driven alternative, years before the final evolution debuted with the automatic SST gearbox, too many dull econoboxes on the market since it made significantly less power than its GSR brethren.

This matte, Sonic the Hedgehog-like blue Evolution VII is slightly modified but still within the realms of OEM specifications, and for sale, courtesy of The Motor Company. The Evolution 8 Enkei wheels suit the polarising paint job better than the diamond cut 17" the Evolution 7 wore and are sitting on Blitz coil-overs while the boot spoiler has been upgraded to the bigger GSR wing. The hood has also been replaced with a lighter GSR carbon fibre hood, and the interior is brought up to date with an android infotainment system.

With Mitsubishi killing off the Evolution nameplate, these potent turbocharged AWD sedans are soon to be a relic of the past as global powers are doubling down on extinguishing the internal combustion engine, which is why now is as good a time as any to own a Lancer Evolution.

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# Peering into your mind

## UIU's Brain Computer Interface Research Lab paves the way for advanced research on brain-computer interface

The Brain Computer Interface (BCI) Research Lab in United-International University (UIU) is the first laboratory in Bangladesh with the sole focus on researching the connectivity between the human brain and machines. Inaugurated on 12 December 2021, this lab introduces new technology to create more opportunities in the biomedical and neuroscience research fields of Bangladesh.

While the subject of brain-computer interface can be difficult to explain, in the simplest terms, it is a method of communication in which the electrical signals in the brain can be tracked via a computer. Research involving brain-computer interface consists of decoding the brain's electrical activity and translating the output as decipherable commands.

UIU's BCI Lab aims to contribute to this ever-expansive branch of neuroscience research by introducing innovative technology with hopes of

attention in classrooms. With the purpose of combating this alarming statistic, FocusMind provides a neurotech-based solution.

Using a headset that collects, filters and processes EEG data, FocusMind can calculate the engagement index of students to measure how attentive they are during a classroom lecture. In a classroom utilising this technology, the teacher and the students need to be wearing the FocusMind headsets, which will allow their brain waves to be synchronised. The headset will be digitally connected to a dashboard that will track individual records and performances of each student, so the teacher can further pinpoint inattention spans and adjust the classroom more to be more efficient.

The neuro and biofeedback will essentially quantify and compare how engaged the students are when listening to a lecture, taking a test or watching video lectures. BCI Lab plans to use the information provided from FocusMind

signs of a human brain to gain insight on the subconscious decisions that affect a consumer's choice in product purchase. The data derived from this finding can provide credible information on product development and pricing. Thus, Market Brain can be used by advertising agencies to receive more informed suggestions on how to cater to the mainstream while addressing consumer needs.

Market Brain operates by collecting neuro codes from a participant's mind when they are exposed to a specific advertisement. Using a machine to input EEG and eye tracking of the participant, the AI filters brain signals and classifies noticeable patterns via methods called feature extraction and selection. These patterns are delivered in the form of prediction algorithms that can be used to potentially increase consumer engagement and boost the efficiency of product marketing.

BCI Lab plans on commercially releasing Market Brain to advertising

processing the data by removing different physiological and non-physiological aspects through feature selection and extraction. Afterwards, the device develops a supervised classification model, using machine learning algorithms, to identify patterns that might signify factors of depression in a person.

Because this research will take time to complete, BCI Lab aims to finalise this project within the next three to four years.

### CONCENTRATETODAY
*A real-time brain-computer interface based neurofeedback system for enhancing sustained attention*

In a similar vein to FocusMind, ConcentrateToday is another project by UIU's BCI Lab that focuses on researching and enhancing attentiveness in the human brain. However, instead of pinpointing the attention span of students in classrooms, this is a more generalised research that anybody can participate in.

Currently available on their website, ConcentrateToday is a public research
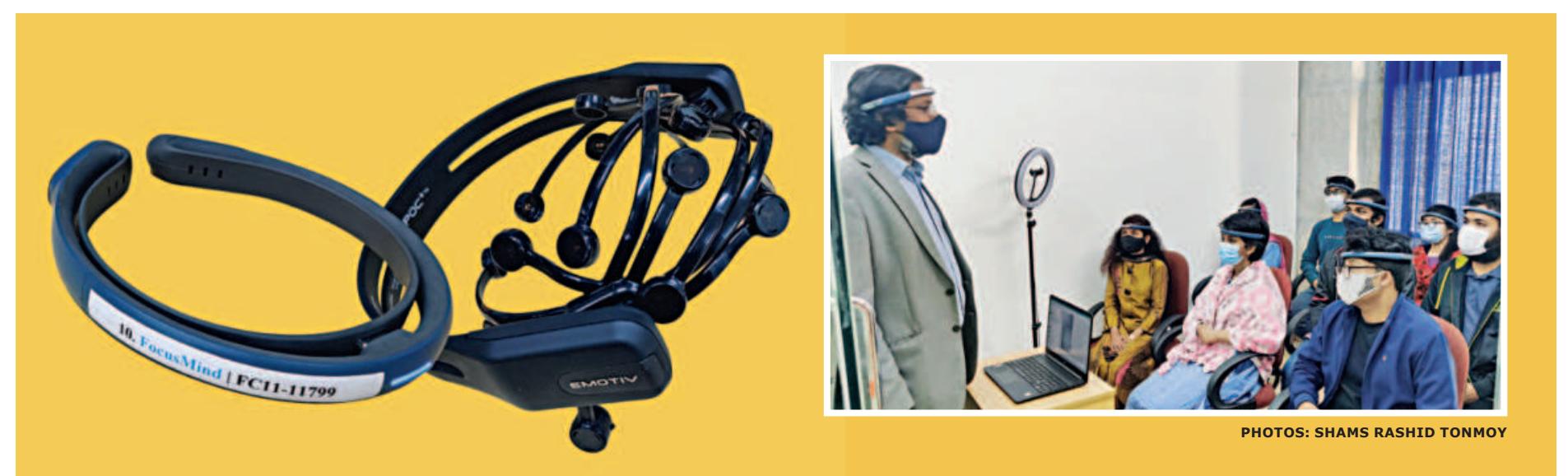
positively impacting the educational, medical and commercial sectors of Bangladesh. The projects of this lab attempt to tackle existing challenges in the fields of machine learning and neuroscience research.

BCI Research Lab currently has four ongoing projects:

### FOCUSMIND
*An integrated BCI and neurofeedback-based learning method for students in Bangladesh*

FocusMind is a BCI-based learning system that aims to improve the efficiency of concentration in classrooms. According to BCI Lab, in Bangladesh, around 47.6 million students between 10 to 24 years of age drop out from tertiary level education because of a lack of

to evaluate the collective performance of teachers and students in various classrooms to make more informed decisions on transforming the education sector of Bangladesh.

FocusMind is expected to be released on a small-scale by the end of the year.

### MARKET BRAIN
*Design and development of a neuromarketing system in Bangladesh*

Labelled as the first-ever neuromarketing project in Bangladesh, Market Brain uses AI to dive deeper into our understanding of consumer choices, mainstream preferences and brand appeals.

Using a headset, the Market Brain AI can measure neural and physiological

agencies by the end of the year.

### DEEP DEPRESSION
*BCI based system for identifying depression through neural connectivity analysis*

Mental ailments are always a tricky subject to tackle. While modern psychiatrists can pinpoint signs of depression and anxiety using questionnaires and assessment tasks, it is not yet possible to accurately extract information about a patient's mental condition. Using the cutting-edge 64-channel EEG device, BCI Lab's Deep Depression project aims to scientifically identify depression in the human mind.

The aforementioned EEG device works by acquiring and recording electrical signals in the brain, and then

project that involves the signing of a consent form. After agreeing, the participant will be asked to wear a headset that will scan their brain for EEG, measuring and recording electrical activity. The neurofeedback system of the headset will be able to detect the participant's concentration level and show results via a score and progress chart.

The project also involves brain training sessions. The participant will be taught simple techniques to increase their concentration level, and the end of each session will contain tips to increase that level further, based on what the headset has tracked. You can check out ConcentrateToday at: https://concentrate.today/#/