

# IPEC 2K23 BVRIT REPORT

## INTRODUCTION:

A National Level Student Go-kart design competition, IPEC 2K23 was hosted on 3rd, 4th and 5th Aug 2023 at BVRIT, Narsapur. As a part of the Silver Jubilee year of the Institute. The college was expecting to get at least 25 teams from various engineering colleges from nearby states. With a rich legacy of honing engineering talent and harbouring fierce competition, IPEC is all set to explore boundless possibilities of the human mind. This event is an inter collegiate design competition for engineering students. The Competition includes designing, fabricating and validating a four wheeled vehicle (Go-Kart) driven by one driver. The vehicle would be capable to be driven by one driver on gasoline or Electric power. The vehicle would be evaluated for its design, performance, safety, durability and the teams compete against each other.

BVRIT Narsapur campus developed an ATV and Go-kart tracks were built in BVRIT campus in an area of 2.15 acres. This Field has one ATV track of length 0.6 km and Go-kart track of length 0.55 km. ATV track contains an endurance track of length 0.4 km with different types of obstacles and surface types. These tracks will be useful for students participating in different vehicle design competitions for testing their vehicles in simulated tracks before the competition.

## IMPORTANT DATES -

3rd August - Inauguration, Registration, Technical Inspection.

4th August - Brake Test, Acceleration Test, Auto Cross, Skid Pad

5th August - Endurance, Valedictory

**REGISTRATION FEE - 17,500/-**

**TEAM CAPTAIN - ZAFEER AHMED QADEER (817 963 9490)**

**DRIVER - SHAIK MUZAMMIL ADNAN (733 740 6871)**

## VEHICLE MANUFACTURING AT SAE LAB MJCET

In our college's SAE lab, we meticulously crafted the go kart. Our team focused on key aspects such as perfecting the chain drive, enhancing the brake system, refining the steering mechanism, applying vibrant paint and intricate stickers, ensuring comfortable seat cushioning, and meticulously installing headlights, tail lights, and electrical wiring. Each element was a crucial piece of the puzzle that contributed to our finely tuned go kart, ready to take to the IPEC 2K23 - Go Kart Racing Competition. In our college's SAE lab, we put in a lot of work to make our go kart top-notch. We started by changing the sprocket, which is an important part of the go kart's chain drive system. This change helped us fine-tune the power delivery and make the go kart smooth..

Next, we focused on the brake system. We swapped out the old brake master cylinder with a new one to improve braking performance. To ensure everything worked smoothly, we performed brake bleeding, a process that helps get rid of any air bubbles that might affect the brakes.

The tie rods, which help control the movement of the wheels, had some play in them. We made sure to remove this play to ensure precise steering and handling. Speaking of steering, we also focused on eliminating any extra movement in the steering mechanism itself, making sure the go kart responded swiftly to every turn.

Comfort was another factor we considered. We cushioned the seat to make those high-speed turns and bumps on the track a bit more bearable for the driver. Safety was paramount too. We added a new mount for the fire extinguisher, a crucial safety feature in case of emergencies.

Turning our attention to the go kart's electrical system, we tackled the wiring. This step is like giving the go kart its nervous system – all the headlights, tail lights, kill switches, and other electrical components need to work seamlessly. We even got a new battery to ensure reliable power supply throughout the competition.

All these changes and improvements might sound like a lot, but they were essential in getting our go kart ready for the race.



## COMPETITION (DAY - 1)

On the exciting first day of the event, we began by transporting our go kart to BVIT locally and arrived at the college by 9 am. The morning kicked off with a thrilling kart rally right at the college, where various go karts, including ours, were showcased to the enthusiastic crowd. The anticipation in the air was palpable as we proudly displayed our creation to fellow participants and spectators. The highlight of this rally was the official unveiling of the racing track, setting the stage for the heart-pounding action to come.

As the day progressed, we eagerly submitted our go kart for the all-important technical inspection, covering both mechanical and electrical aspects. This evaluation was a crucial step to ensure that all participating vehicles met the required safety and performance standards. The inspectors meticulously reviewed our go kart, scrutinising every detail to ensure it was up to par.

During the inspection, we received feedback and suggestions from the inspectors, aimed at further enhancing the go kart's readiness for the competition. These suggestions included specific changes that needed to be made to meet the inspection criteria. In a determined effort to fulfil these requirements, our team worked tirelessly and stayed overnight, making the necessary adjustments and improvements. The changes are listed below:

- Motor main wire Clamp
- Silicon plastic cover for Battery box
- Tie Rod locking
- Grub Screw for Drive shaft
- New Chain guard
- An extra Kill Switch near Brake pad ( incase of brake Fail)





## DAY - 2

On the day before the event, day - 2, we continued our preparations by submitting our go kart once more for the crucial technical inspection. The good news is that we successfully passed both the mechanical and electrical aspects of the inspection, which was a big relief.

Then we took the go kart to undergo a brake test, and thankfully, it met the required standards. The brakes were working well, ensuring our safety on the track. Then came the acceleration test, and we were thrilled to see our go kart perform admirably, meeting the acceleration requirements. For one of the requirements, we needed to declare the maximum speed of our go kart. So, we wrote a letter stating that our vehicle could reach a maximum speed of 25 kmph and submitted it as per the guidelines.

However, not everything went smoothly during the skid pad and autocross events. Unfortunately, we faced a setback when our go kart's motor overheated, preventing us from completing these events. It was a disappointment. We took this as a learning experience and an opportunity to make necessary adjustments to prevent such issues in the future.



## DAY - 3

On the third day, things kicked off with some important instructions for both our team captain and the driver. We were briefed about the track and given details about where overtaking was allowed, along with strict reminders about avoiding crashes. The organisers also pointed out spots where we could get repairs done during the race and provided us with guidelines to ensure fair and safe racing.

Excitement was in the air as the race finally began. However, as luck would have it, we faced a familiar problem – the motor of our go kart overheated once again, causing its coil to burn out during the very first lap of the endurance race. It was a tough blow for us. The hard work and dedication we had put into preparing our go kart seemed to be in vain as we were unable to complete the race. This turn of events was undeniably disappointing. The anticipation we felt at the starting line quickly turned into frustration as we watched our hopes of completing the race dashed by technical issues. But even in the face of this setback, our team held their heads high. We understood that setbacks are a part of racing and that overcoming them is a crucial aspect of the sport.

As we reflected on the situation, we saw it as an opportunity to learn and grow. It highlighted the importance of thorough preparation and the need to address technical challenges effectively. Despite the disappointment, we remained resilient and focused on the positive aspects of the experience. We had come a long way in the journey, and while the race might not have gone as planned, the knowledge gained and the camaraderie built were invaluable.

We were presented with certificates to the whole team & a token of Appreciation to college for participating in the event.



## IPEC 2K23 TEAM ASPHALT MEMBER LIST

NAME	SECTION	ROLL NO	PHONE NO
ZAFEER AHMED QADEER(CAPTAIN)	3MA	1604-20-736-053	8179639490
SHAIK MUZAMMIL ADNAN (DRIVER)	3MA	1604-20-736-010	7337406871
FAIZAN AHMED (VICE CAPTAIN)	3MB	1604-20-736-076	9908359717
KHAJA MOINUDDIN	3MB	1604-20-736-069	8688701017
SYED SAYEEDUDDIN AHMED	3MB	1604-20-736-065	7416906168
MOHAMMED SOHAIL	3MB	1604-20-736-071	9553221153
MOHAMMED RIYAZUDDIN	3MB	1604-20-736-091	9515791624
MOHAMMED SAQIB AHMED FARAZ	3MB	1604-20-736-094	9398687678
SYED OWAIZ AHMED	3MB	1604-20-736-061	9581826881
MOHAMMED MOIZ ALI KHAN	3MB	1604-20-736-086	8247632252
ADNAN AHMED(EEE)	3EA	1604-20-734-050	9505494095
MOHAMMED ABDUL QAYYUM	3MB	1604-20-736-077	7989971744
SYED FARAZ HUSSAIN	3MB	1604-20-736-072	7661887321
MOHAMMED ABDUL KALAM	3MB	1604-20-736-083	7642149573
MOHAMMED ASAADUDDIN	3MB	1604-20-736-087	8466035794
MOHAMMED ALI KHAN	3MB	1604-20-736-082	8309502750
SHAFEA SHUJA KHAN	3MB	1604-20-736-075	9704707109
MOHAMMED RAYHAN KHALEEL	2MB	1604-21-736-084	7729061000
MOHAMMED JAWAAD AHMED	2MB	1604-21-736-089	8978164107
SHAIK MAHBOOB DOULA	2MB	1604-21-736-313	8309322103
MOHAMMED FAZLUR RAHMAN KALEEM	2MB	1604-21-736-077	7780427287
MOHAMMED KHAJA FAIZUDDIN	2MB	1604-21-736-088	9398183642
SHAIK AMEER JANI	2MB	1604-21-736-078	7731879819
SHOAIB KHAN	2MB	1604-21-736-086	8790751108
MOHD AMAAM	3MB	1604-20-736-064	9581413883
MIRZA MAHBOOB ALI BAIG	2EA	1604-21-734-016	9347820818