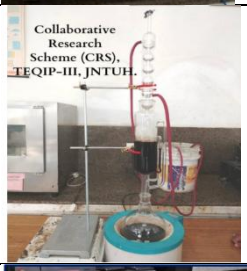
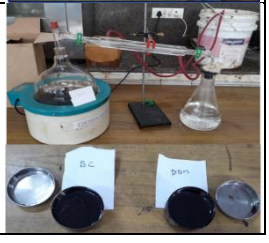
Details of Equipment / infrastructure available related to your domain for research.

a) Binder characterization

S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
1.	Viscosity Testing Equipment	EIE Instruments & Indian Make	1,34,662/-	25.03.2013	
2.	Brookfield Rotational Viscometer	PSI & US Make	2,93,625/-	30.10.2006	
3.	Rolling Thin Film Oven & its Accessories – Dry air pressure	AIMIL & UK make	8,16,106/-	16.07.2007	
4.	Loss on Heating & its Accessories	AIMIL & Indian make	373,900/-	16.07.2007	
5.	RAP binder extraction	Soxhlet extraction Developed in the laboratory as per ASTM		2020	
6.	Asphalt Binder composition	Developed in the laboratory as per ASTM		2019	
7.	Asphalt distillation process	Developed in the laboratory as per ASTM		2019	

b) Asphalt Mixes characterization / Performance studies

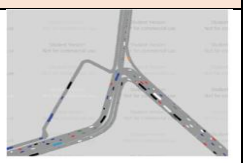
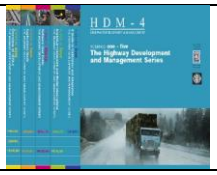
S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
8.	Marshall Mix Design – Automated - DAQ	PSI	1,00,000/- (50,000 + 50,000)	2006 & 2010	
9.	Automatic Compactor	AE&C & US Make	5,68,125/-	01.09.2012	
10.	In-direct tensile test and Tensile strength ratio test	Sree Vani Tech Enterprises	125,000/-	24.01.2017	
11.	Resilient modulus – Cyclic load test	Spranktronics & Indian make	13,47,202/- (947,002 + 4,00,421)	01.12.2011	
12.	Immersion type Wheel Rutting Equipment	GEOTRAN & Indian Make	722,912/-	03.06.2015	
13.	Roller Compactor	GEOTRAN & Indian Make	2,65,640/-	27.11.2015	
14.	Accelerated Polishing Apparatus & its Accessories	AIMIL & UK make	13,50,003/-	16.07.2007	
15.	Plate Bearing Apparatus & its Accessories	AIMIL & Indian Make	2,14,908/-	15.06.2007	

S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
16.	Servo Controlled Testing Digital loading frame – Fracture properties of asphalt mixes (Semi -circular bending test).	HEICO	4,25,353/-	18.07.2020	

c) Pavement Evaluation

S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
17.	Pavement Core cutting apparatus	HILTI	2, 88,660/-	08.01.2021	
18.	Indigenous Light Weight Deflectometer for Structural Evaluation of Pavement	Developed in the laboratory under DST project	3,00,000/-	2021	
19.	Deflection studies and MERLIN studies	PSI		2006	

d) Traffic Safety:

S.No	Name of the Software	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
20.	VISSIM & VISUM Software	Sunovatech - PTV	420,002/-	01.05.2013	
21.	HDM IV 10 License	TRL, USA	90,548/-	18.12.2018	

Product Development – Teaching Learning process

1. **Title of Project: Development of An Indigenous Low-Cost /Light Weight Deflectometer for Structural Evaluation of Pavement**

Ref: D.O.No. DST/TDT/DDP-12/2018 dt: 11.04.2019 - Device development

Amount stationed: Rs.14,10,600/-

Field Test device description

The developed indigenous Low-Cost /Light Weight Deflectometer consists of a loading device, base plate, and geophone sensor's one provided at the center of the plate and two other sensors provided in the radial direction. During the test, falling weight is dropped down along the guide rod and hits a shock absorber and the compressive force is transferred to the loading plate (250mm dia.). This falling weight produces a load pulse in the range of 1 – 15 kN in about 15–20 ms. The geophone sensor which is attached at the center of the loading plate and along the radial distances (30 and 60mm) records the pavement surface / layer deflection. The measured deflection at the center of the plate and radial shall be used to calculate the dynamic deformation modulus of thin pavement layers. This Indigenous light falling weight deflectometer will be used as quality control/quality assurance devices for testing sub-grades, base courses, and compacted pavement layers.

Field testing process

Fig.1 Field testing of designed apparatus

Field testing was performed on the project of four-laning of NH-161 from Kandi (NH-65) to Ramsanpalle in Telangana state.

Indian Design (Patent), Title "A non-invasive device for modulus measurement of pavement layers" Indian Design file no. : 353540-001, IPI, Govt. of India – GRANTED