



Sri Sai Vidya Vikas Shikshana Samithi ®

## SAI VIDYA INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi, Affiliated to VTU, Belagavi, Recognized by Govt. of Karnataka  
Accredited by NBA, New Delhi (CSE, ECE, ISE, MECH & CIVIL)

RAJANUKUNTE, BANGALURU 560 064, KARNATAKA

Phone: 080-28468191/96/97/98 \* E-mail: [info@saividya.ac.in](mailto:info@saividya.ac.in) \* URL [www.saividya.ac.in](http://www.saividya.ac.in)

### **REPORT ON RAIN WATER HARVESTING AT SVIT CAMPUS**

Rain water harvesting (RWH) is a simple method by which rainfall is collected for future usage. The collected rainwater may be stored, utilized in different ways or directly used for recharge purposes. With depleting groundwater levels and fluctuating climate conditions, RWH can go a long way to help mitigate these effects. Capturing the rainwater can help recharge local aquifers, reduce urban flooding and most importantly ensure water availability in water-scarce zones.

The total water requirement for the institute is 75 KLD. Several Water conservation facilities are taken by the institute to meet the water requirement of the institution. Rain Water Harvesting has been provided for recharging the aquifer to compensate withdrawal to some extent. A roof top rain water is collected to minimize the withdrawal from ground water and is used for ground water recharge. Groundwater recharge pits are constructed inside the premises

#### **RAIN WATER HARVESTING AT SVIT**

The Sai Vidya Institute of technology is built over 9 acres of land and is situated in Bengaluru, Karnataka. It is positioned at 13.168474347491875N, 77.55841786137307E topography. The institution is having two hostel blocks for boys and girls. There are well-kept gardens, canteen, Playground and parking lots present in the premises. In the total 9 acres of land 3 acres of land is utilized for construction that is land use and the remaining 6 acres of land is land cover.

Following initiatives has been carried out in the campus for rain water harvesting.

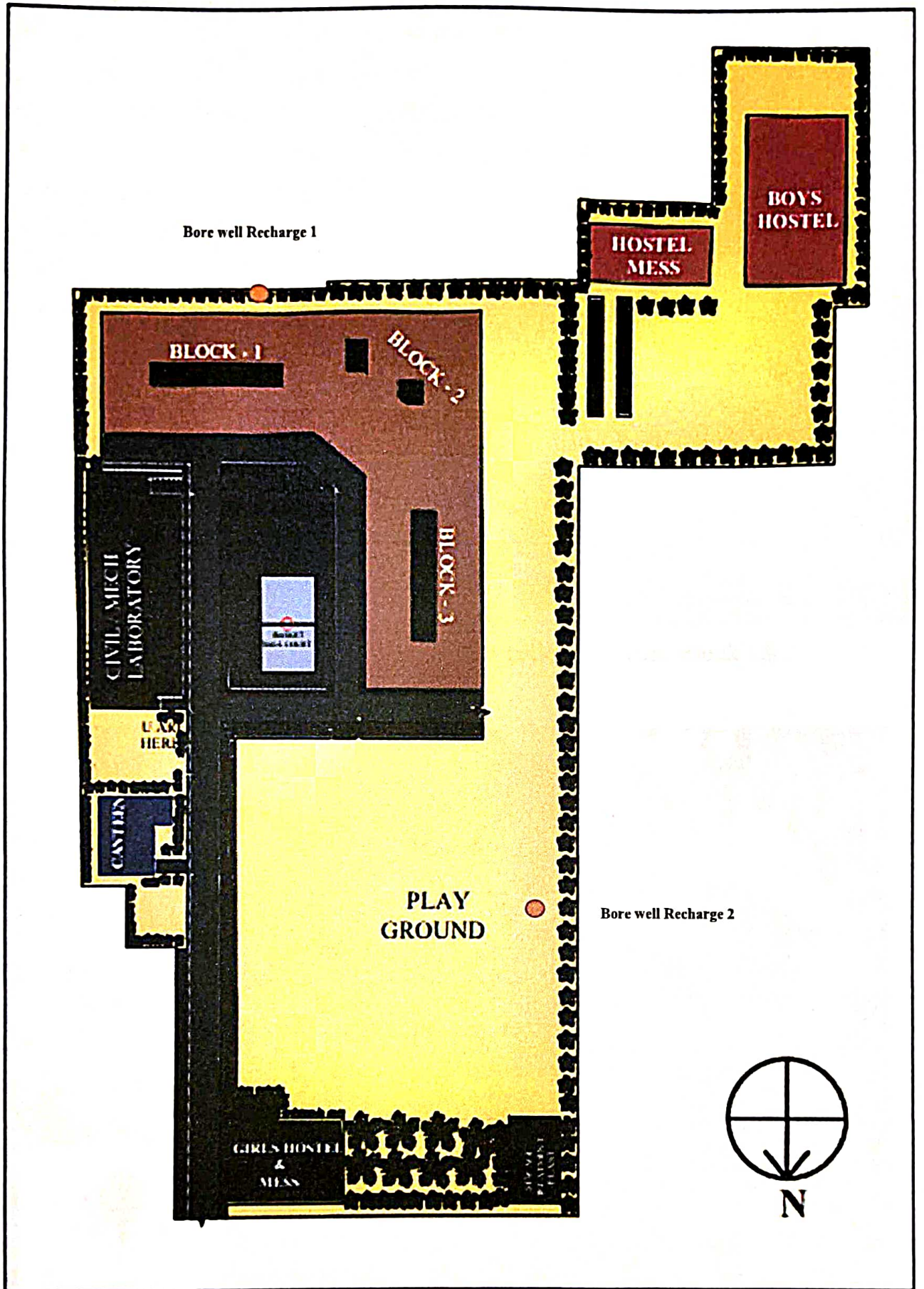
<b>Sl.no</b>	<b>Facility Created for Rain Water Harvesting</b>
1	Roof top Rain Water Harvesting
2	Bore well Recharge
3	Check Bund and Recharge well

## 1. ROOF TOP RAIN WATER HARVESTING

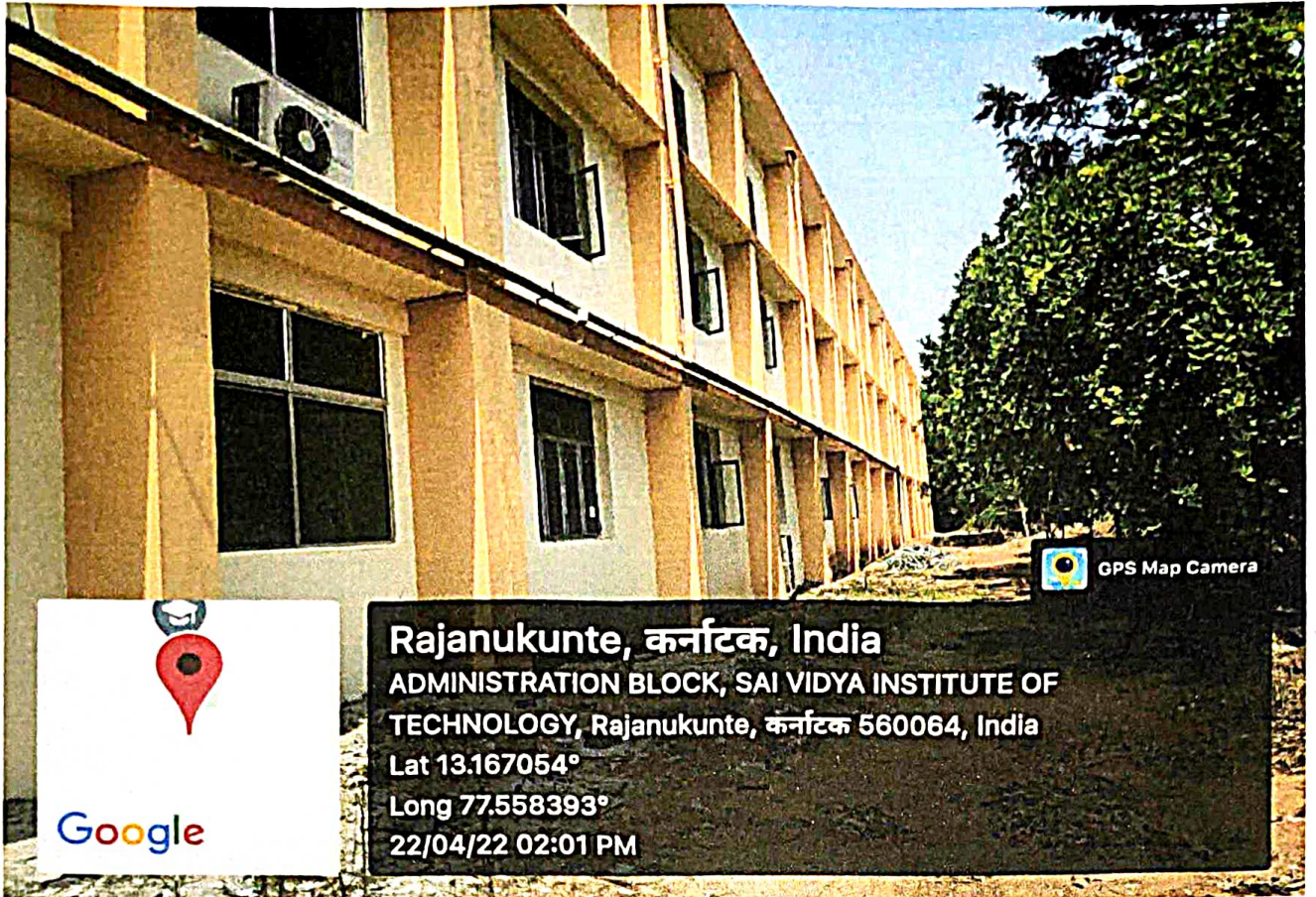
The total quantity of rain water collected from roof tops of college, hostel buildings, Parking lot and land surface is shown in the table below.

SL No	Particulars	Roof top Area(m <sup>2</sup> )	Average annual Rainfall m	Volume of rain Water collected in Cu.m	Gross Rainfall discharge Cu.m
1	Roof top of Block 01	1809.54	0.55	995.25	11639.347
2	Roof top of Block 02	1976.37	0.55	1087.00	
3	Roof top of Block 03	1810.00	0.55	995.50	
4	Roof top of Boys hostel	966.33	0.55	531.48	
5	Roof top of Girls hostel	674.88	0.55	371.18	
6	Parking lot	1980.00	0.55	1089.00	
7	Land discharge	18099.00	0.55	9954.45 X 0.66=6569.937	

**Table showing overall discharge of rainwater in the SVIT campus**



Master Plan of SVIT Campus



**Rajanukunte, कर्नाटक, India**

**ADMINISTRATION BLOCK, SAI VIDYA INSTITUTE OF TECHNOLOGY, Rajanukunte, कर्नाटक 560064, India**

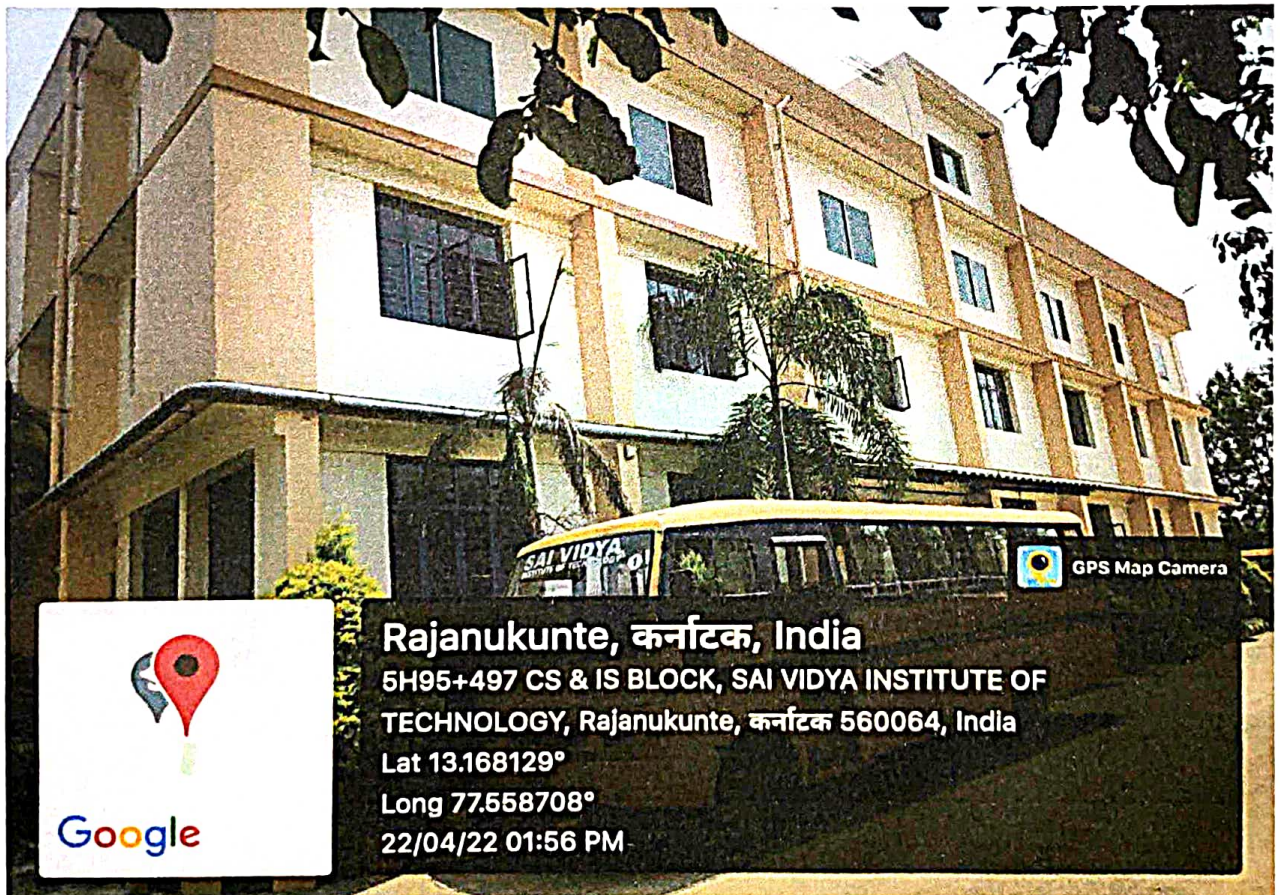
**Lat 13.167054°**

**Long 77.558393°**

**22/04/22 02:01 PM**

**Google**

**Plumbing work for roof top rain water collection from Block 1&2**



**Rajanukunte, कर्नाटक, India**

**5H95+497 CS & IS BLOCK, SAI VIDYA INSTITUTE OF TECHNOLOGY, Rajanukunte, कर्नाटक 560064, India**

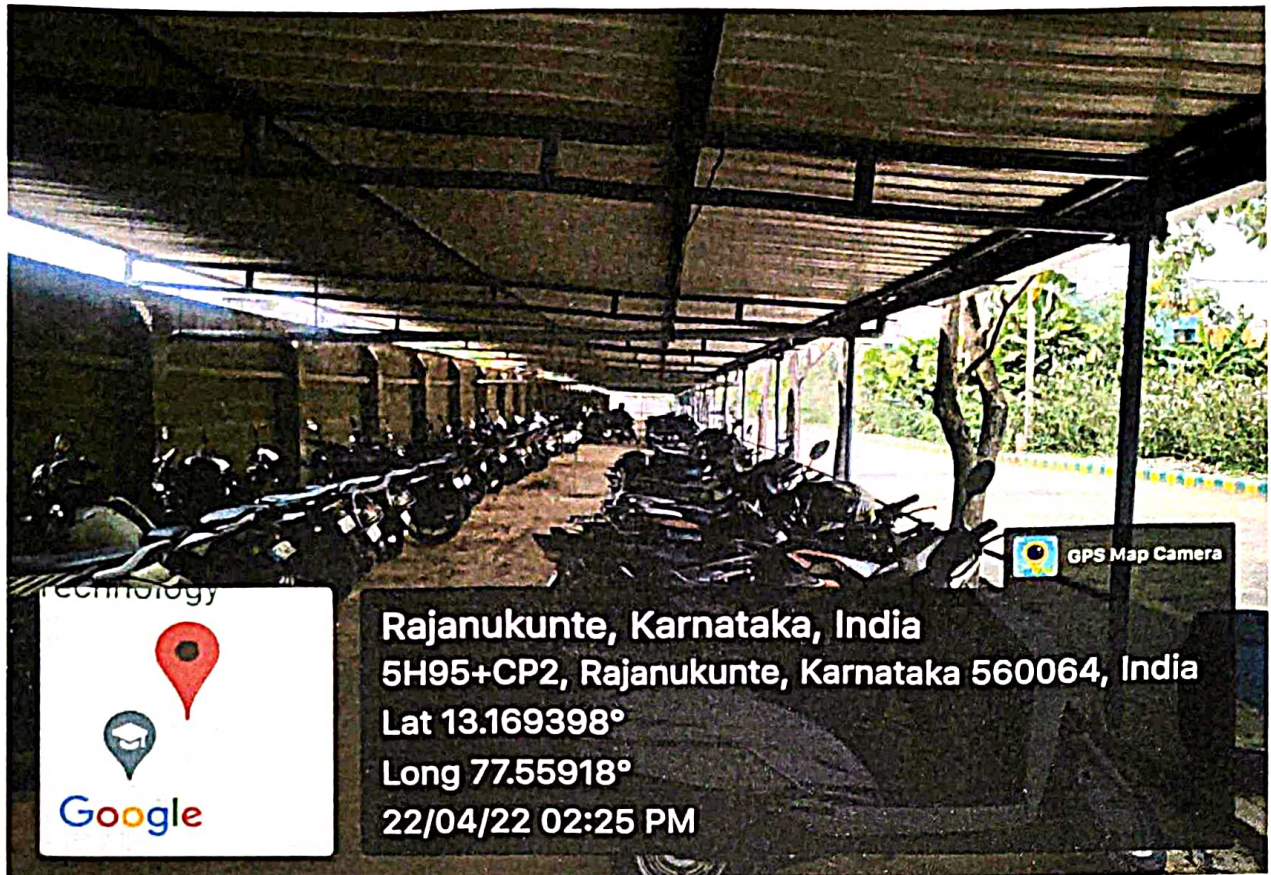
**Lat 13.168129°**

**Long 77.558708°**

**22/04/22 01:56 PM**

**Google**

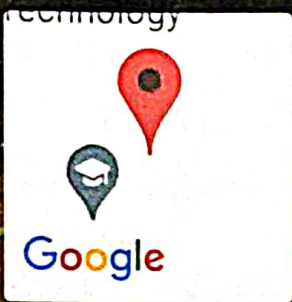
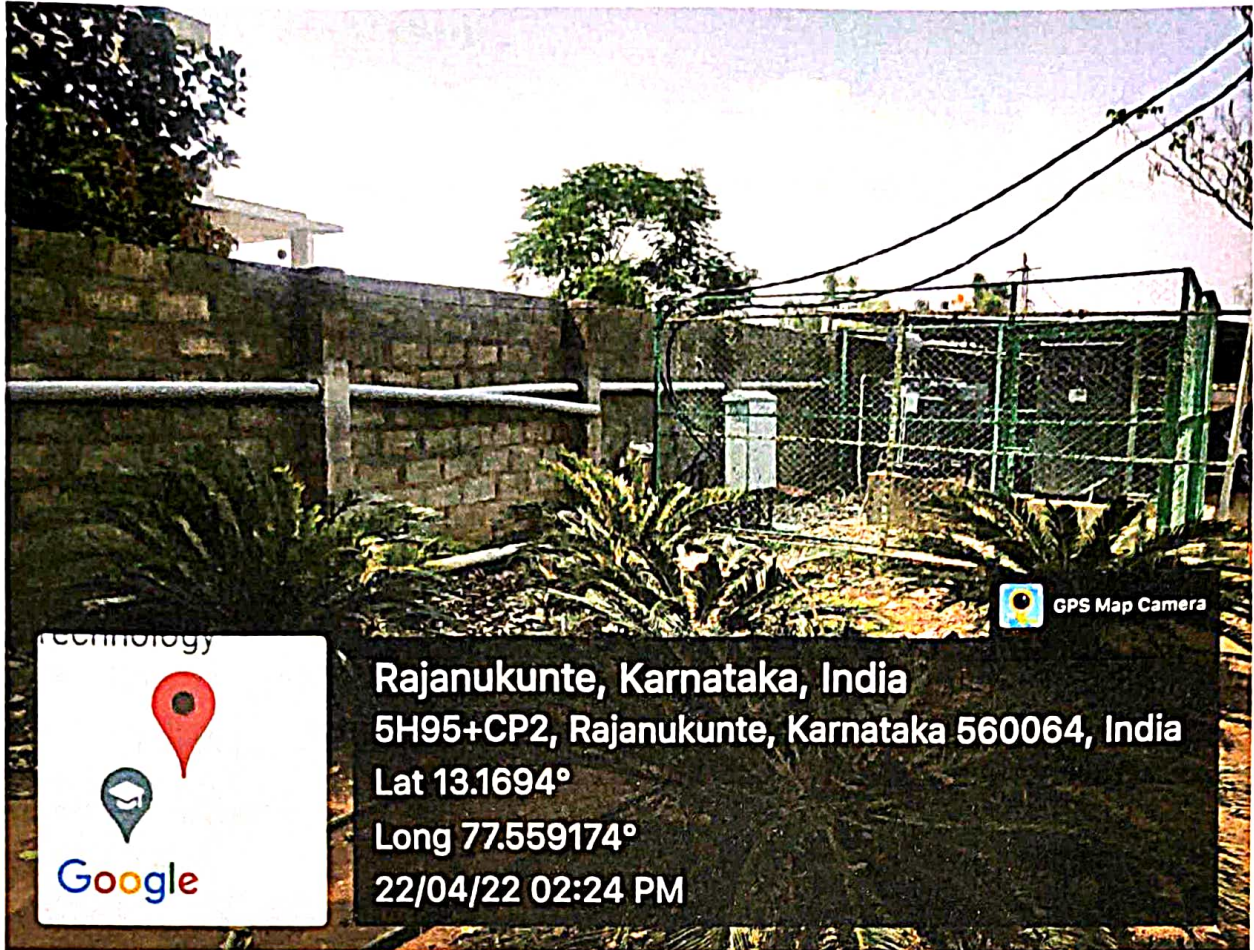
**Plumbing work for roof top rain water collection from Block 3**



**Plumbing work for roof top rain water collection from parking lot**



**Roof top rain water collection from parking lot**



Rajanukunte, Karnataka, India  
5H95+CP2, Rajanukunte, Karnataka 560064, India  
Lat 13.1694°  
Long 77.559174°  
22/04/22 02:24 PM

**Plumbing work for roof top rain water collection from parking lot and connected to girls hostel Sump**

The work was done on 22/04/22 at 02:24 PM. The location is Rajanukunte, Karnataka, India. The coordinates are Lat 13.1694° and Long 77.559174°. The work was done for plumbing work for roof top rain water collection from parking lot and connected to girls hostel Sump.

## **2. BORE WELL RECHARGE**

### **Materials and Methods**

The detailed specifications and locations of all the bore wells were indicated in the below pictures.

A pit of 3.1 m \* 6.1 m dimension was excavated in the region centering the casing of the bore well. At the bottom of the pit, filter holes were made to a casing pipe and mosquito mesh was fixed tightly such that the casing pipe will function as a filter. Then different layers of filter bed system were laid as per the following specifications.

- The first layer of pit was filled with boulders from the base up to a height of 2.1 m depth.
- The second layer of 1 m height was filled with coarse aggregates of 40 mm size.
- The third layer comprises 0.4 m coarse aggregates of 20 mm size.
- The fourth layer was laid with nylon mesh and filled with charcoal of 0.5 m depth.
- The fifth layer was filled with sand of 0.7 m depth.
- The remaining space of 1 m was left as a gap for ponding water.

### **Installation & Working Principle:**

Currently both bore wells in campus are brought under the water recharging system. The water from roof top is directed to bore wells for recharge. A separate pipeline is made to facilitate the same.

The total discharge of water collected from the rainfall is about 11639.347 Cu.m. The water from roof tops is collected through pipes and directly connected to the bore wells for recharge. For two bore wells the recharging pits are prepared as per the specifications for the surface ground water recharge such that only filtered water recharges in to the bore well. The rain water from the boy's hostel roof top is directly harvested in to the Sump. The rain water collected from the parking lot is harvested into ladies' hostel sump.

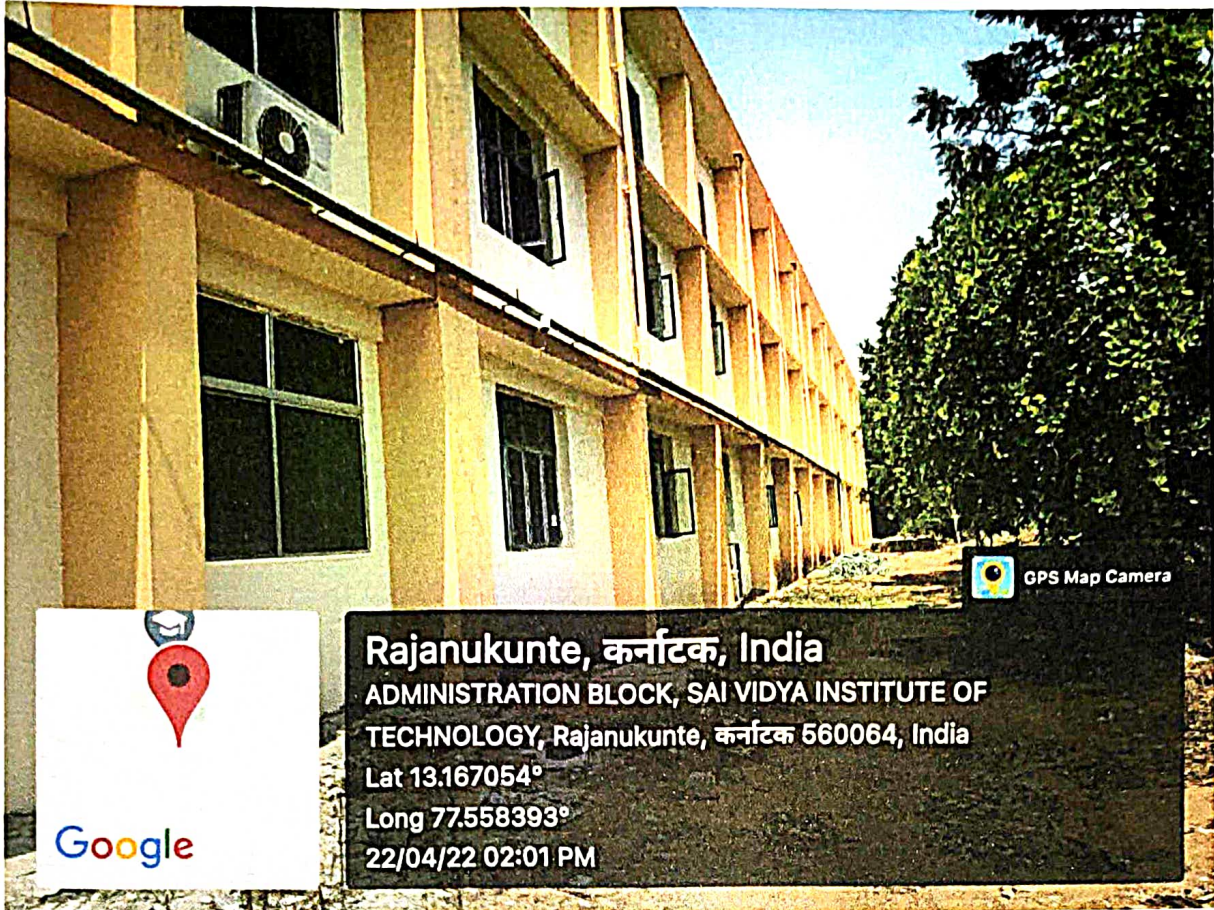


Filling first layer of big sized boulders stone



Filling second layer of 40mm aggregates jalli stones

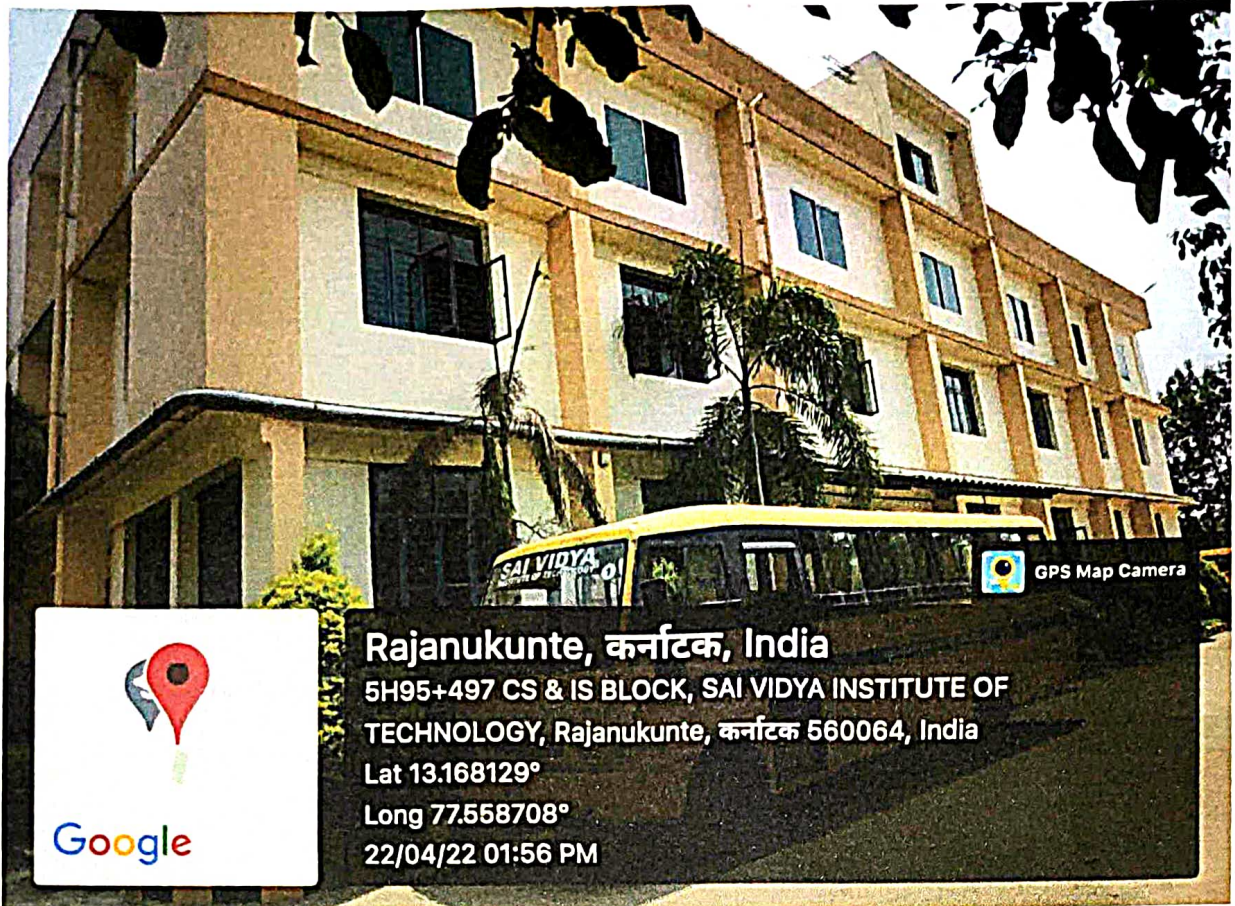




**Plumbing work for roof top rain water collection from Block 1&2**



**Recharging of Bore well by roof top rain water and from land discharge**



**Rajanukunte, कर्नाटक, India**

5H95+497 CS & IS BLOCK, SAI VIDYA INSTITUTE OF TECHNOLOGY, Rajanukunte, कर्नाटक 560064, India

Lat 13.168129°

Long 77.558708°

22/04/22 01:56 PM

**Plumbing work for roof top rain water collection from Block 3**



**Rajanukunte, Karnataka, India**

Kakolu road, S.V.I.T college, 5H95+87H, opposite rajankunte, Rajanukunte, Karnataka 560064, India

Lat 13.168155°

Long 77.558288°

22/04/22 01:57 PM

**Plumbing work for roof top rain water collection from Block 3**



**Rajanukunte, Karnataka, India**

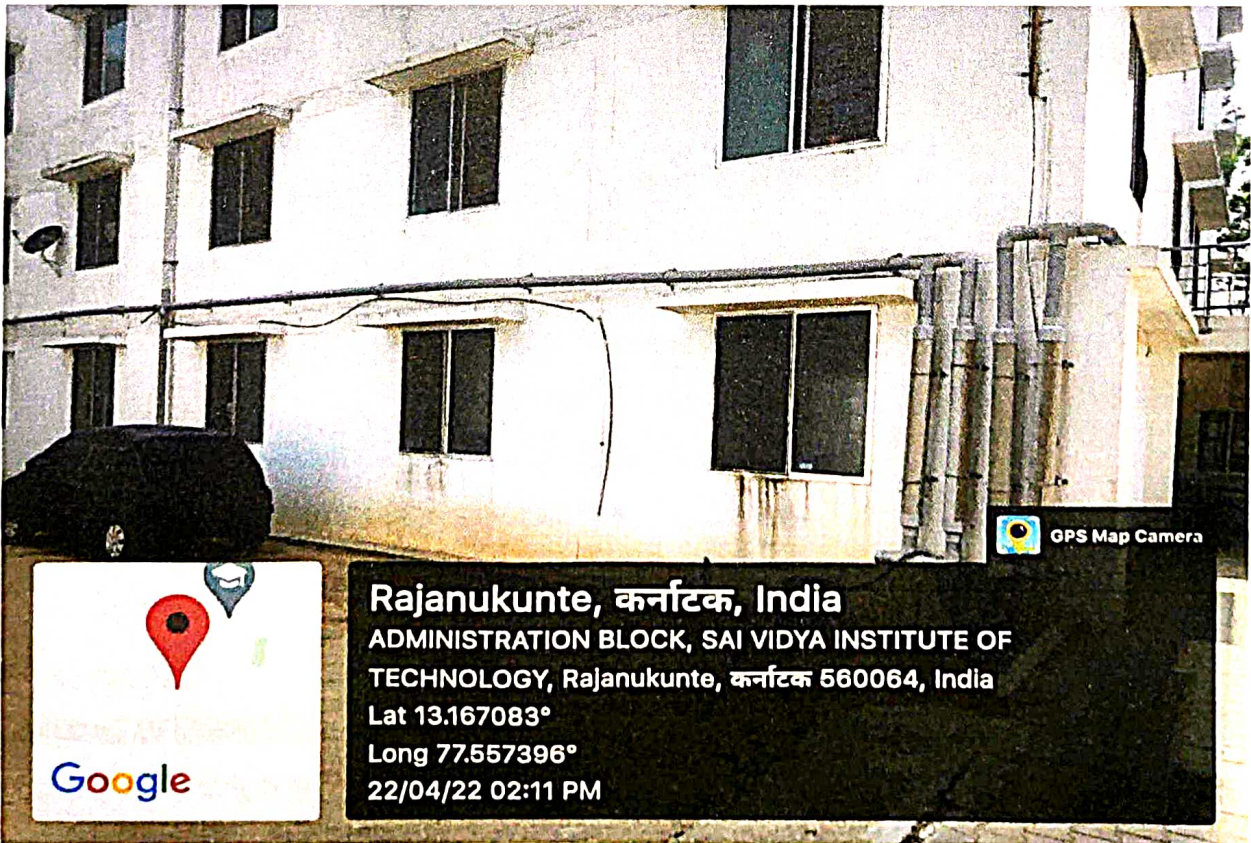
Kakolu road, S.V.I.T college, 5H95+87H, opposite rajankunte,  
Rajanukunte, Karnataka 560064, India

Lat 13.168803°

Long 77.558249°

22/04/22 02:17 PM

**Recharging of Bore well by roof top rain water from Block 3 & from land discharge**



**Rajanukunte, कर्नाटक, India**

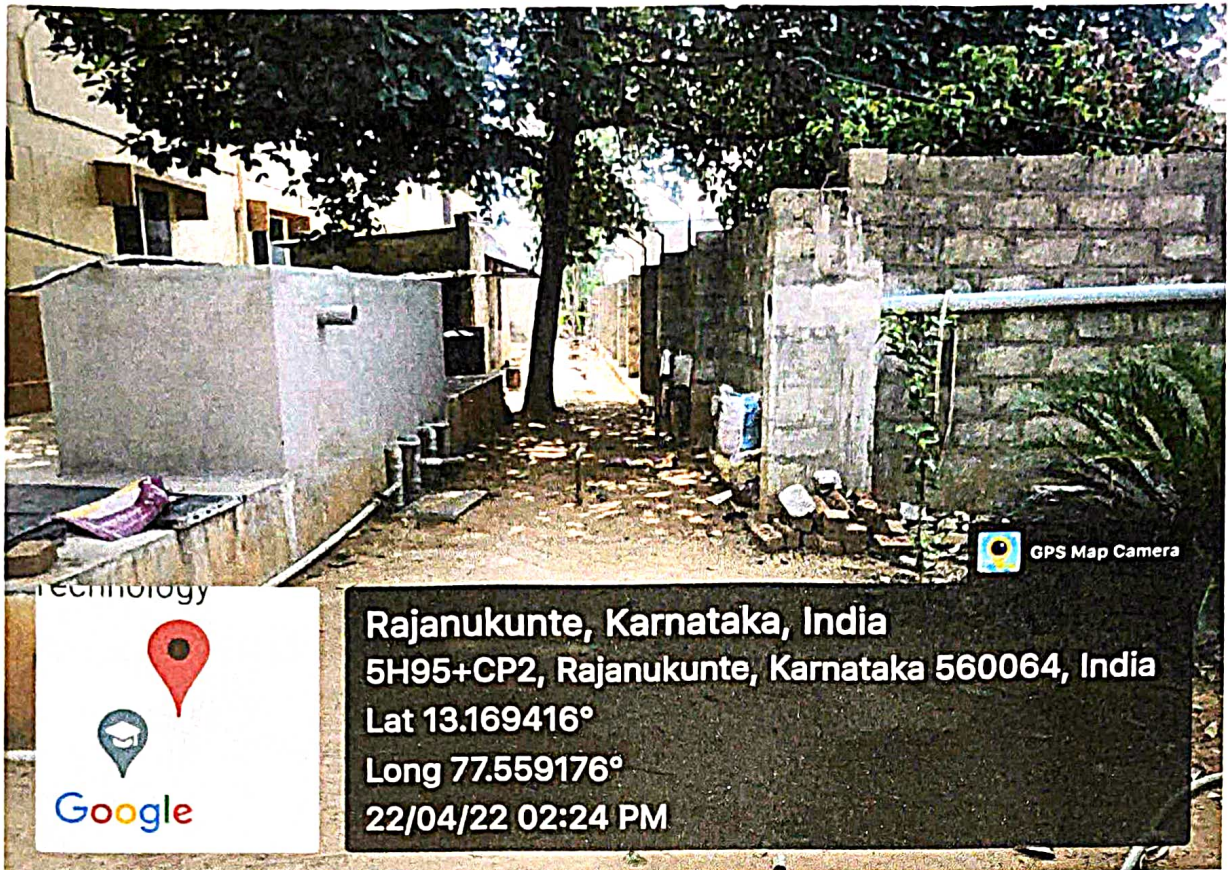
ADMINISTRATION BLOCK, SAI VIDYA INSTITUTE OF  
TECHNOLOGY, Rajanukunte, कर्नाटक 560064, India

Lat 13.167083°

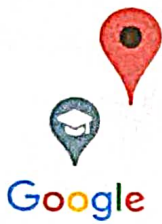
Long 77.557396°

22/04/22 02:11 PM

**Recharging of Sump by roof top rain water in Boys hostel**

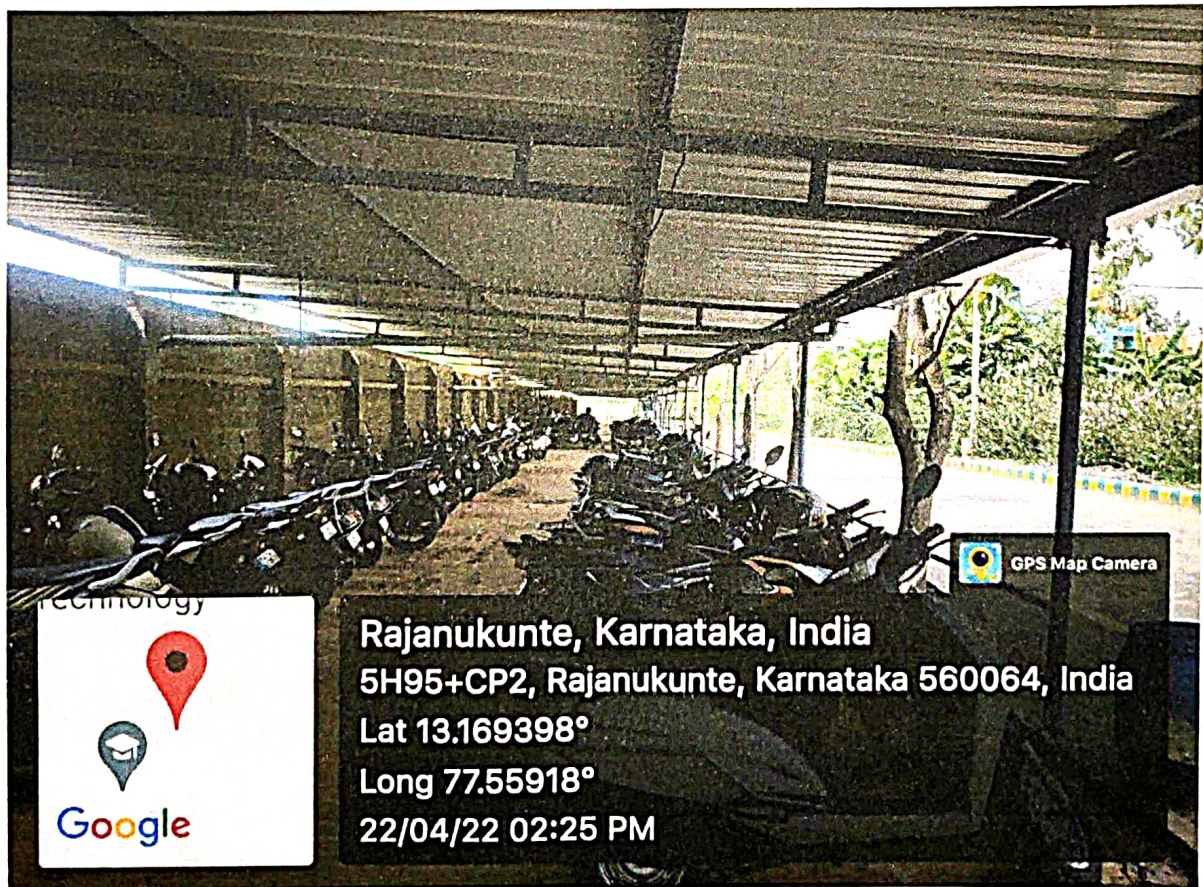


Technology



**Rajanukunte, Karnataka, India**  
**5H95+CP2, Rajanukunte, Karnataka 560064, India**  
**Lat 13.169416°**  
**Long 77.559176°**  
**22/04/22 02:24 PM**

**Recharging of Sump by roof top rain water from parking lot in girls hostel**

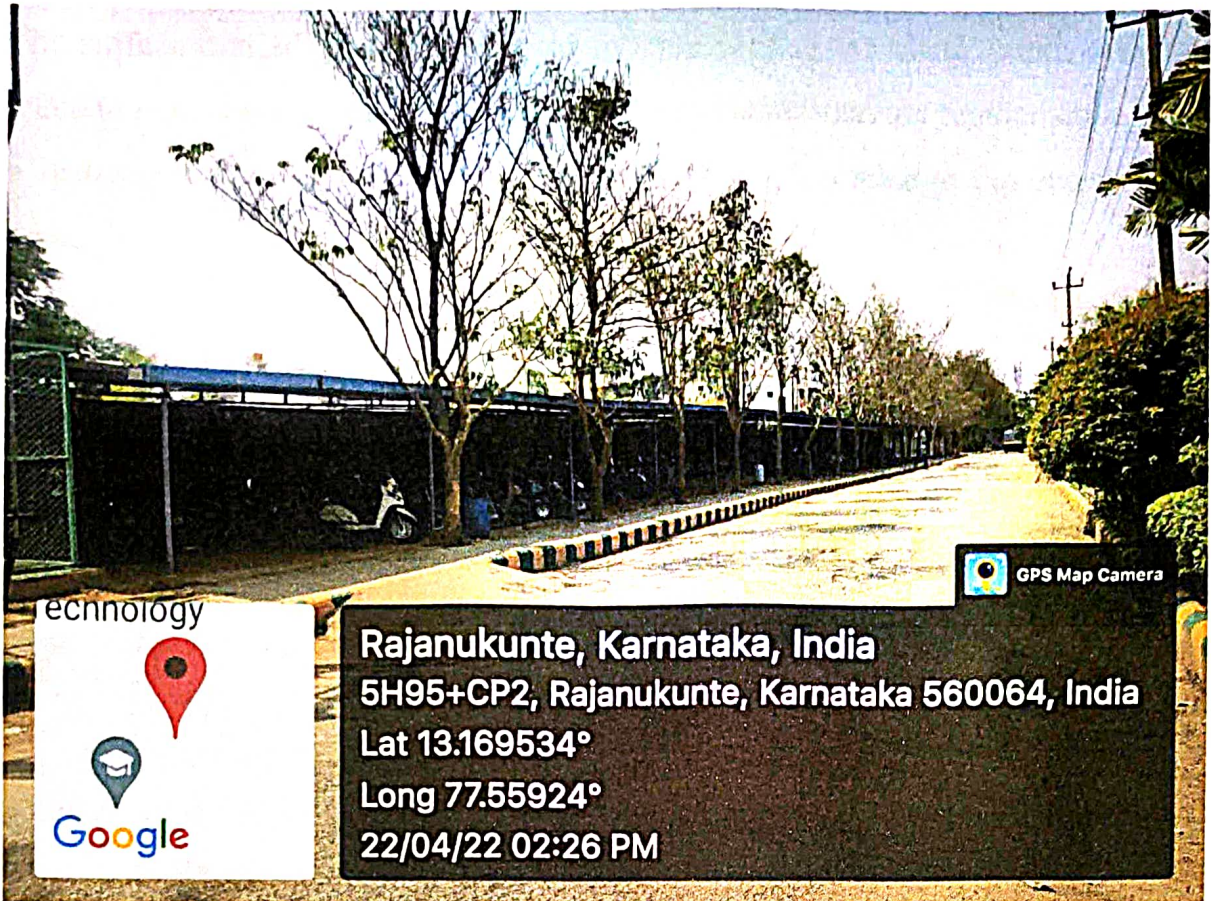


Technology



**Rajanukunte, Karnataka, India**  
**5H95+CP2, Rajanukunte, Karnataka 560064, India**  
**Lat 13.169398°**  
**Long 77.55918°**  
**22/04/22 02:25 PM**

**Plumbing work for roof top rain water collection from parking lot**



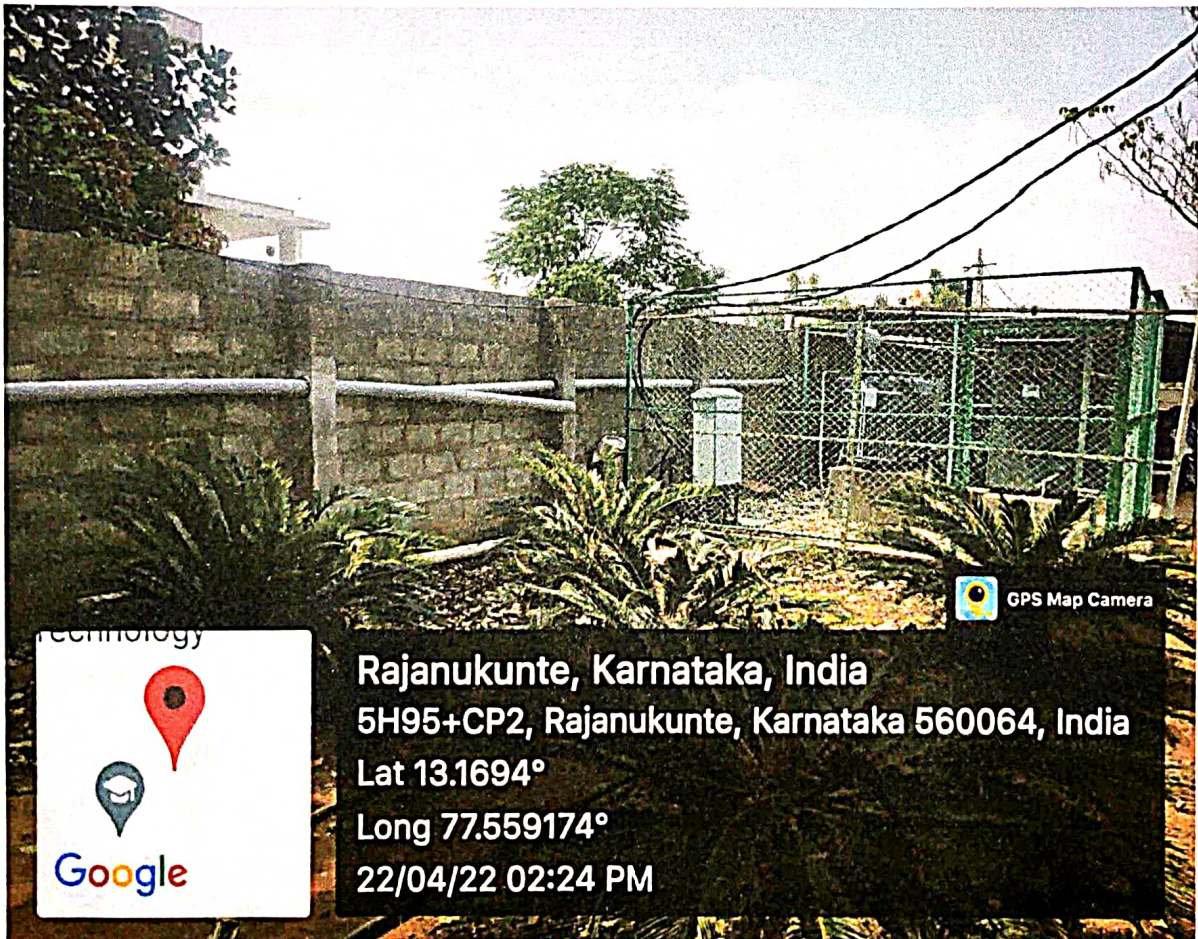
ecnnology



GPS Map Camera

**Rajanukunte, Karnataka, India**  
**5H95+CP2, Rajanukunte, Karnataka 560064, India**  
**Lat 13.169534°**  
**Long 77.55924°**  
**22/04/22 02:26 PM**

**Roof top rain water collection from parking lot**



ecnnology



GPS Map Camera

**Rajanukunte, Karnataka, India**  
**5H95+CP2, Rajanukunte, Karnataka 560064, India**  
**Lat 13.1694°**  
**Long 77.559174°**  
**22/04/22 02:24 PM**

**Plumbing work for roof top rain water collection from parking lot and  
connected to girls hostel Sump**

### 3. CHECK BUND AND RECHARGE WELL

The surface rainfall water is collected by constructing the check bunds and it is taken to bore wells to recharge through surface channels having regular slope. Also a recharge well is constructed near the check Dam to recharge the underground water.



Check Bund with recharge well



Check Bund

## Impact of Borewell Recharge at Sai Vidya Institute of Technology

We observed that after implementing the bore wells recharge system, the discharge of water from the bore wells is increased. Earlier we use to buy 20 water tanks per day. With the hard work of Prof. R C Shanmukha Swamy (Dean Administration) and maintenance department, the bore wells recharge was successfully installed & we are getting sufficient water in our campus and the purchase of water has been almost zero from past 18 months.

  
PRINCIPAL

PRINCIPAL  
**Sai Vidya Institute of Technology**  
Rajanukunte, Bengaluru-560 064