1. Title:
Study on Self-healing concrete using bacteria

2. Area of research & Domain of Research:
Advanced concrete Technology

3. Objective of the proposal:

To investigate the strength, durability, and crack healing properties of bacteria concrete with fiber and cementitious material using immobilization technique

4. Background/short description:

The Conventional repair plans using manual checks from that time forward of filling of cracks accompanying cement or added synthetic fillers are done, which are very high-priced, timeconsuming, and most of the time it is uneconomical. It is also less active and only surface cracks are cured. Therefore, miscellaneous self-healing repair plans containing adhesive-based, autogenously, mineral admixture, and microorganisms-based i.e., bacteria are grown to cure the cracks. So, the matter of usual repairing practice using bacteria is beneficial in cutting down the operational cost as distinguished from most of the manual methods.

5. Expected results:

Self-healing concrete is characterized by the stone's ability to heal cracks on its own. It not only fills cracks, but also partially or completely repairs the material of the equipment. Therefore we can reduce the maintenance cost .

6. References:

- Sidhu, Navneet, Shweta Goyal, and M. Sudhakara Reddy. "Healing of cracks in concrete by using bacterial spores immobilized in metakaolin." In *Structures*, vol. 55, pp. 1144-1158. Elsevier, 2023.

- Luo, Mian, and Chun Xiang Qian. "Performance of two bacteria-based additives used for self-healing concrete." *Journal of Materials in Civil Engineering* 28.12 (2016): 04016151.