Structural Health Monitoring of century-old structure—an initiative for heritage conservation

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- Importance of cultural heritage conservation
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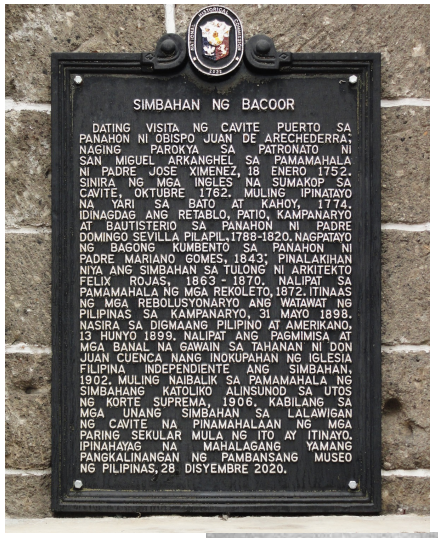
(a) Façade and **(b)** interior structures of St. Michael, the Archangel Parish Church, Bacoor City, Cavite, PH

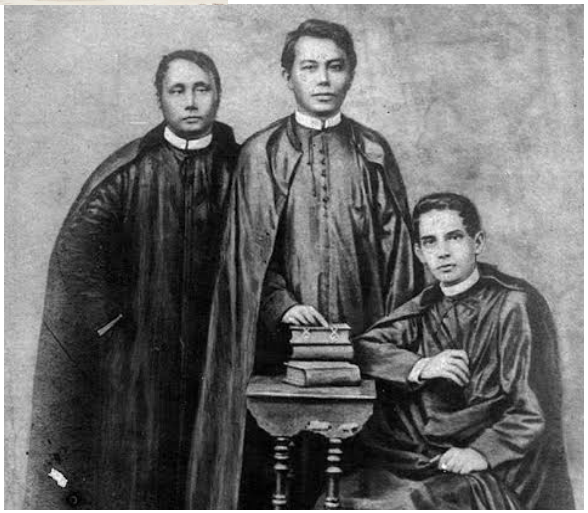
Brief significance of the structure

- Built in 1752, St. Michael, the Archangel Parish Church was one of the oldest churches in the Province of Cavite.[1]

- It was declared by National Museum of the Philippines as an important cultural property.[1]

- It was served by Fr. Mariano Gomez, a Filipino secular priest and one of the triumvirates of GomBurZa who were sentenced to death by garrote in 1872.[2]





Importance of cultural heritage conservation

- Access to historical and educational value

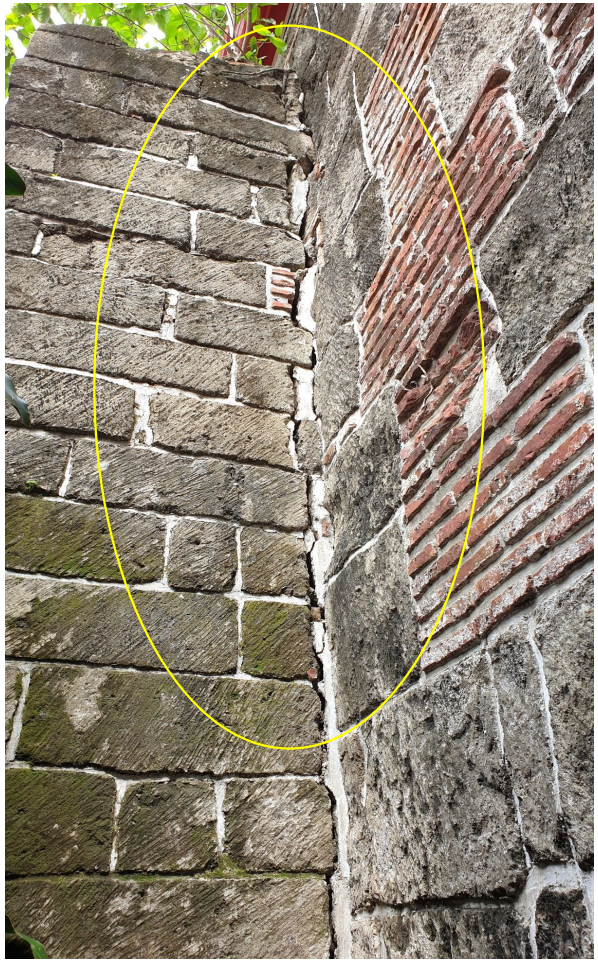
- Preserve the cultural identity and sense of belonging

- Promote economic tourism and sustainable development

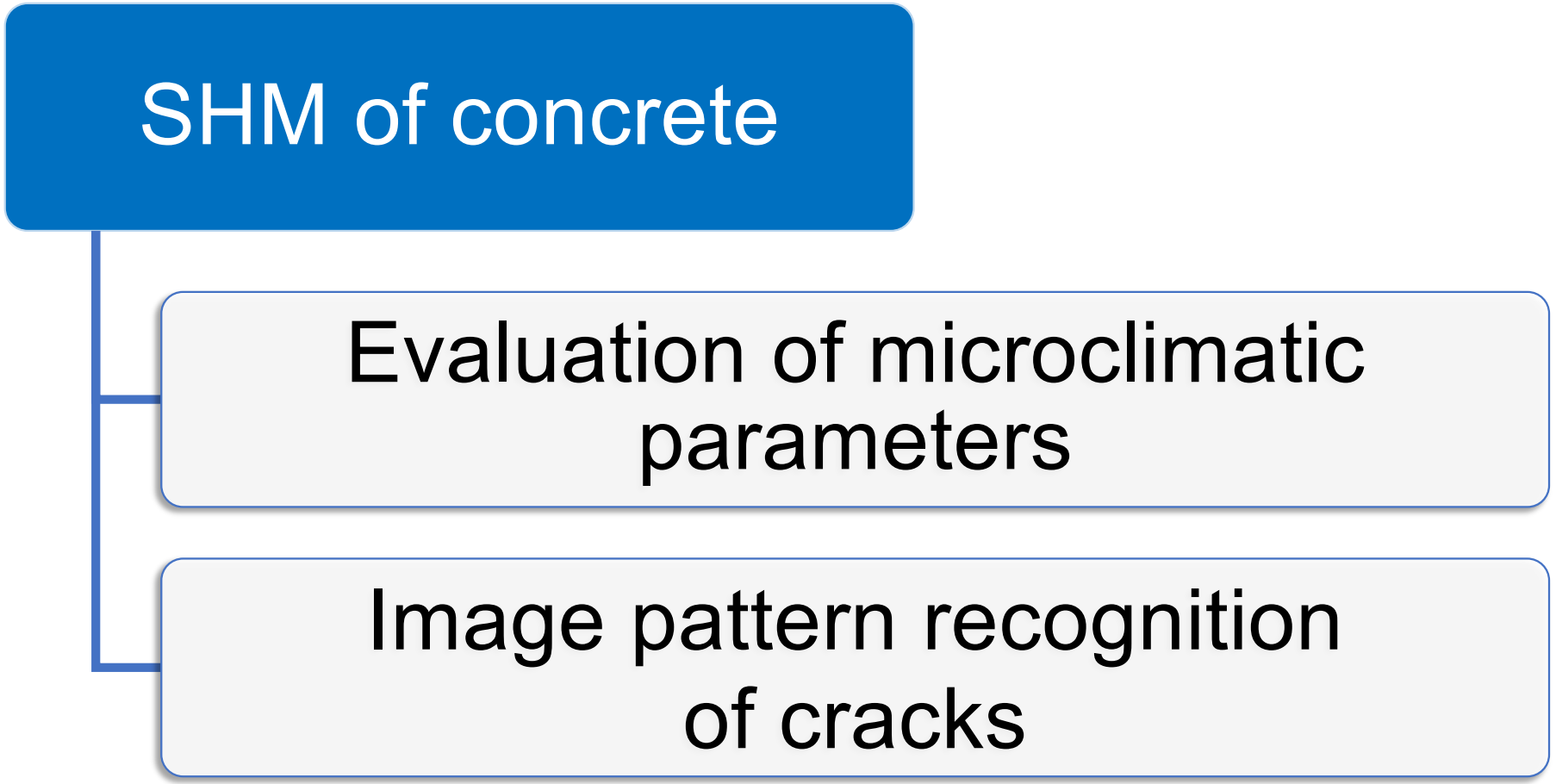
Issues and concerns (1/3)

Issues and concerns (2/3)

Issues and concerns (3/3)



Gameplan


SHM of concrete
Evaluation of microclimatic parameters
Image pattern recognition of cracks

Evaluate microclimatic parameters

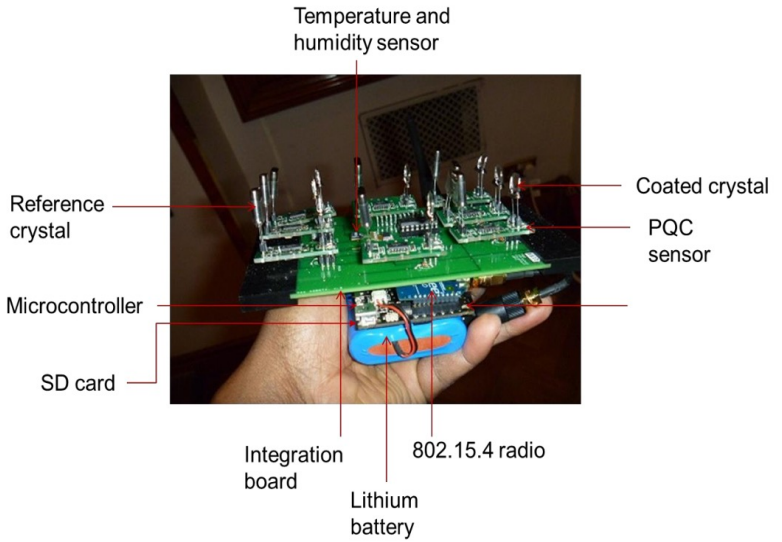
- *Parameters to be measured:*

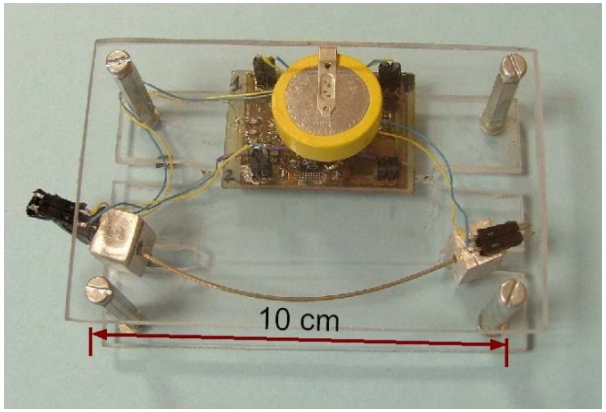
1) Temperature[3, 4]

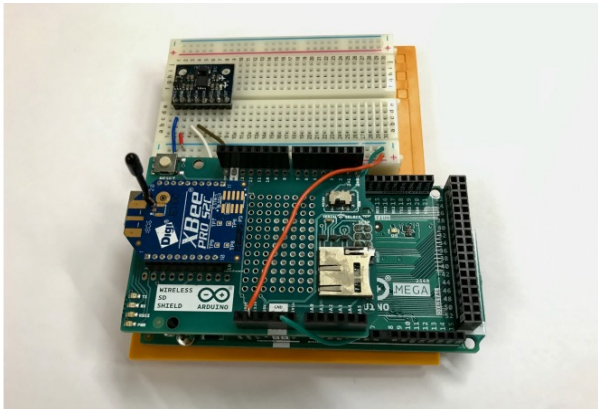
2) Relative humidity[3, 4]

3) Pollutants & gas sensing[5, 6]

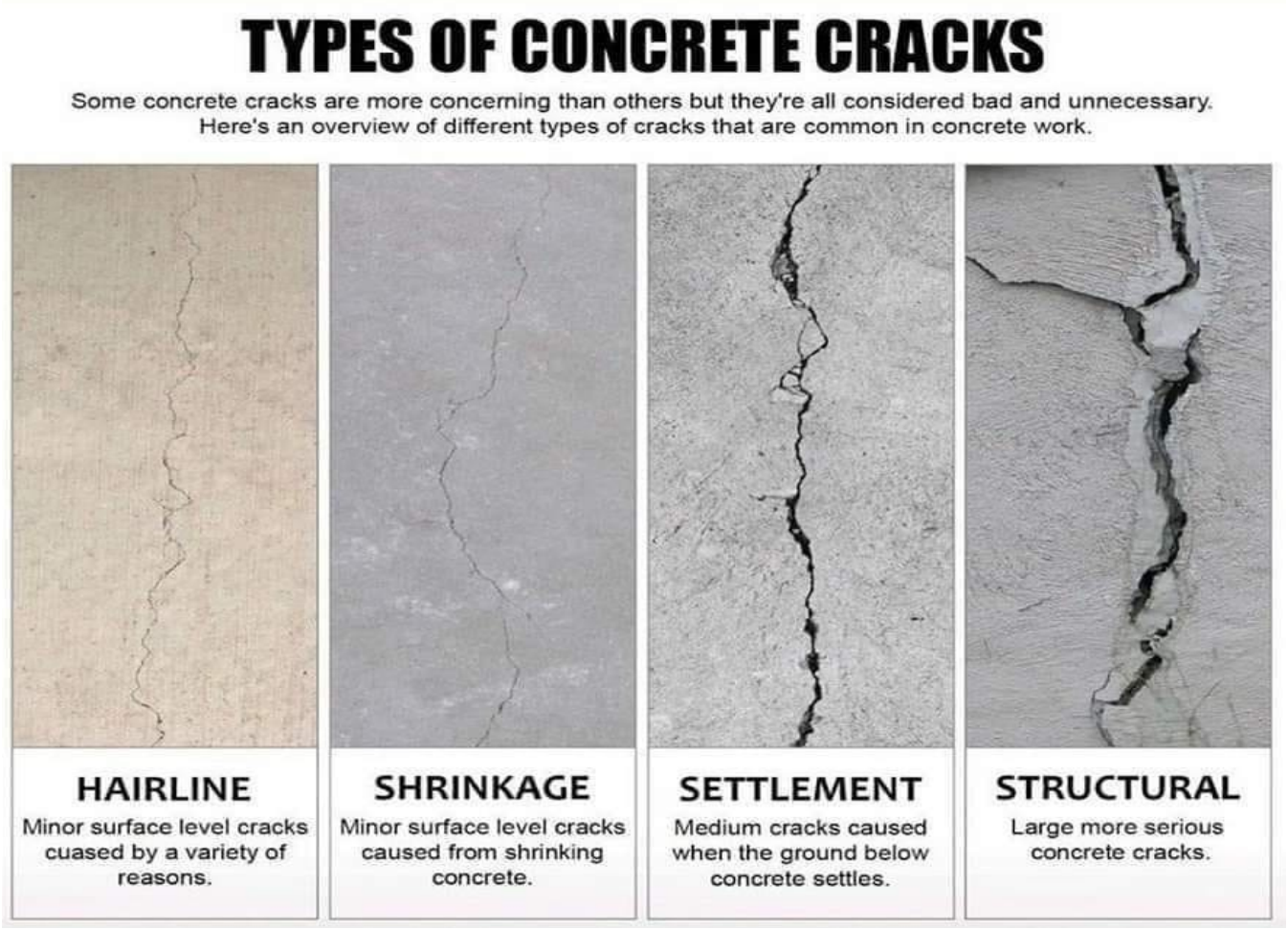
4) Angle of inclination[7]





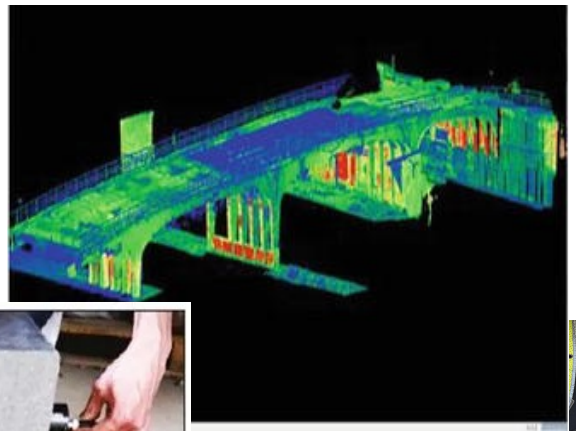


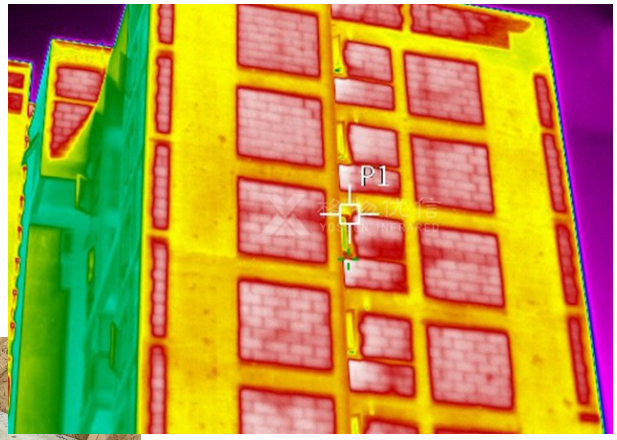
Recognize cracks image pattern (1/2)

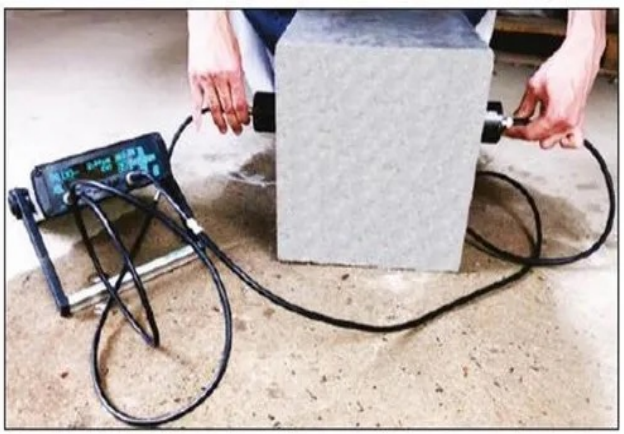


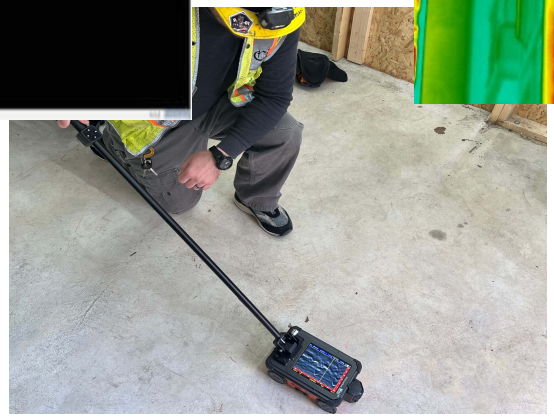
Recognize cracks image pattern (1/2)

- Methods of data gathering are usually carried out by UAV, ultrasonic pulses, terrestrial laser scanning, ground penetrating radar, and IR thermal cameras.

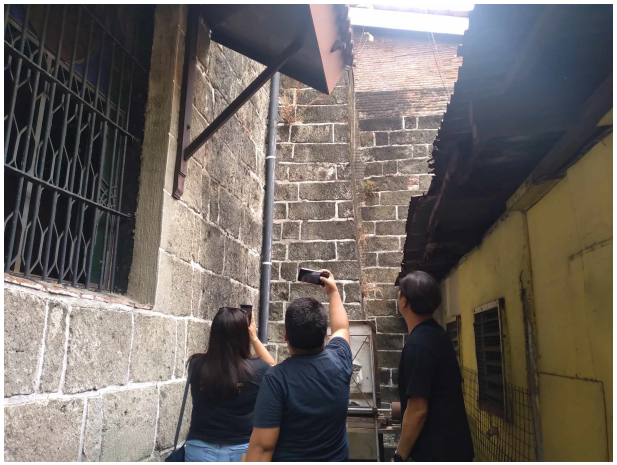








Baby steps towards our initiative



Initial inspection of NHCP on 23 Feb 2024

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Thank You!

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