SEMS

Satellite based Environment Monitoring System

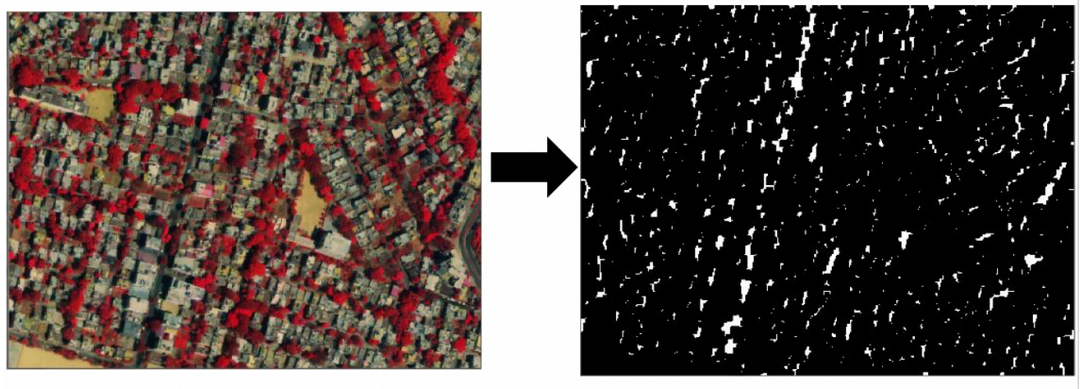
WHAT DO WE DO?

- We monitor land use change via a satellite and flag activities disturbing the ecological balance
- We built the most advanced shadow removal algorithm for high accuracy boundary detection
- Our model can check for forest encroachment, lake bed encroachment, pollution levels in the lake and river bodies and also point out the areas causing them.
- The cost of monitoring via a satellite mechanism is 1/20th the cost of monitoring using human resources and is 3 times more accurate.

PRODUCT FEATURES

- Most advanced Shadow removal of Satellite images

Shadow Detection



Shadow Removal

➤ Accurate mapping of land use change

Original Multispectral Image

Segmented Image

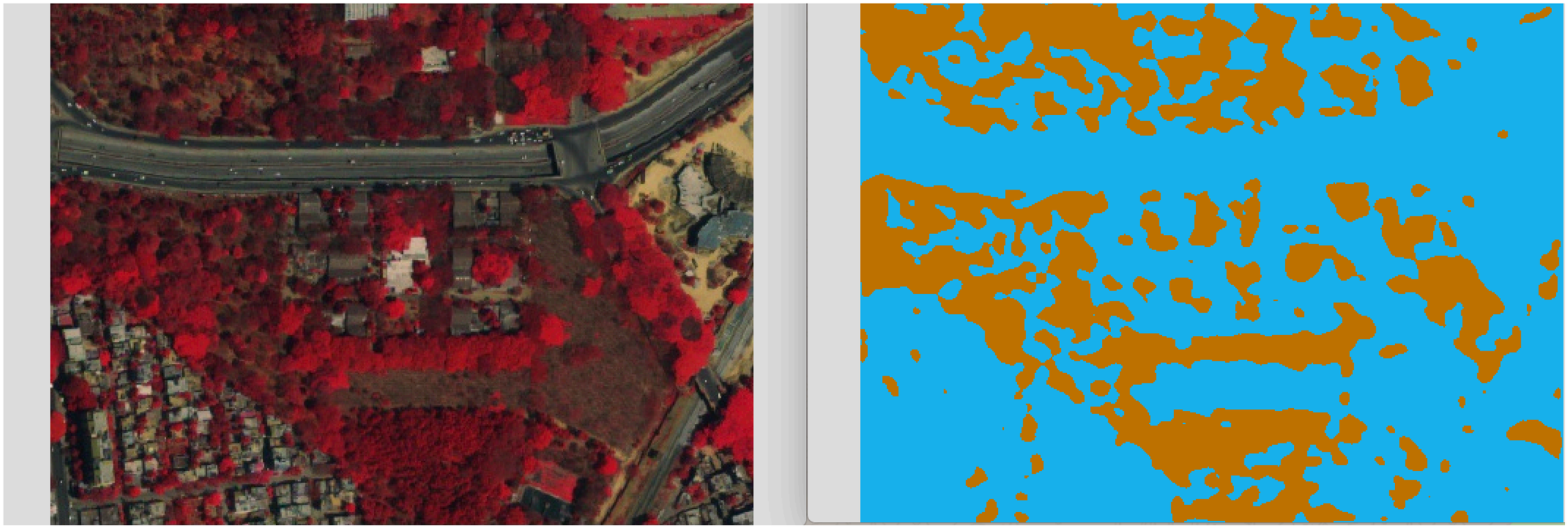
Entity	2005	2010	2015
Land	21	19.8	20
Water	72	63	58
Weeds	3	4.5	6
Roads	4	13	16

Our model takes in satellite images in real time

It computes the percentage of land use change.

It actively flags the activities causing ecological imbalance

➤ Activities encroaching the available forests are flagged



The boundaries of available forests are marked and any activities on them are automatically flagged

IMPACT

- Accurately identifies every 9 out of 10 encroachment activities
- Monitors an area of 709 sq km(Banglore) for a cost of less 17000 INR
- Tree counting algorithm keeps track of prized trees such as Red sandal wood, Rose wood etc.
- Easily Scalable to any demographic area

DEVELOPMENT COST

➤ Estimated cost for monitoring area of 2543 sq. km

Activity	Cost in INR
Image Procurement	21000
Intel Xeon Processors	145000
NVIDIA TESLA GPU	2,80,000
Web hosting charges	

EXTENSIONS

- Pollution measurement using reflectance pattern
- Satellite based monitoring of illegal construction activities
- Satellite based Ground water use indicator
- Ground water pollution detection using LST imaging.
- Disaster management and mitigation by real time monitoring