ART- ANALYTIC, RESEARCH & TECHNOLOGY, INDIA

Lovely Professional University, India

PRESENTS A PAPER ON

TELECOMMUNICATION OVER MARS

Abstraction:

TELECOMMUNICATION OVER MARTIAN SURFACE also would have released a small satellite – a sphere the size of a soccer ball. TOM would have tracked that device as it orbited Mars. The robot Mars Sample Return mission would collect and bring Mars rocks back to Earth. Successful retrieval of those samples would depend on such an orbiting spacecraft to accurately track and intercept the sample container launched from the martian surface. TOM's tracking of its small satellite would have demonstrated such a capability.

TELECOMMUNICATION OVER MARTIAN SURFACE will be the first spacecraft to travel to another planet for the primary purpose of relaying communications to and from Earth. In fact, it will serve as a Mars communications hub for a growing interplanetary Internet. Rovers, science stations, and orbiting spacecraft will all communicate with Earth by sending and receiving signals via the TELECOMMUNICATION OVER MARTIAN SURFACE.

The spacecraft will be in contact with Earth almost around the clock, because its orbit will place it 20 times farther from the planet's surface than other spacecraft, meaning it will nearly always have a direct line of sight to Earth. The TOM will fly above the surface of Mars at a distance of 5,000 kilometers (3,000 miles). Besides sending and receiving communications at radio and microwave frequencies, the TELECOMMUNICATION OVER MARTIAN SURFACE will pioneer the use of lasers for planet-to-planet communications.

These lasers will transmit and receive signals using near infrared light - just beyond the range of the electromagnetic spectrum seen by the human eye. The signals will travel tens of millions of miles through space.

Though optical communications are more susceptible to interference from clouds, they have the potential to transmit 10,000 times as much data as microwave communica-

Data Rate:

TOM not only would have been able to send data to Earth via high-speed X-band and Ka-band radio signals, but also via laser light beams. That was expected to bring a tenfold increase in bandwidth Ð the rate of data transmission. That data transmission speed had been likened to four "T1 lines" that might be found in use on Earth.

Internet Hub:

TOM will be the hub of a growing interplanetary Internet on Mars. It would have linked NASA's orbiting spacecraft Mars Global Surveyor, Mars Odyssey and Mars Reconnaissance Orbiter, Europe¹s Mars Express Orbiter, Mars Phoenix Lander, and the Mars Science Laboratory on the surface. Future landers, rovers, science stations, and orbiting spacecraft all would have communicated with each other and with Earth by sending and receiving signals via TOM.

High in the Martian Sky:

TOM would have orbited the Red Planet at an altitude of about 3,000 miles. That's 20 times farther from the planet's surface than other spacecraft. From up there, TOM almost always would have had a direct line of sight to Earth so it could be in contact with the home planet nearly around the clock.

AUTHOR:

AAKANKSHA SHIRBHATE

PRESIDENT

ART- ANALYTIC, RESEARCH & TECHNOLOGY, INDIA.

CONTACT DETAILS:

EMAIL ID: aakanksha2806@gmail.com

Phone no.: (+91)-978-197-9927