

VECTOR ADDITION

Unit 2, Dr. John P. Cise, Professor of Physics, Austin Com. College, Austin, Texas, USA, jpcise@austincc.edu & New York Times May 22, 2019 by Chris Buckley & Paul Mosur

How China Uses High-Tech Surveillance to Subdue Minorities

KASHGAR, China — A God’s-eye view of Kashgar, an ancient city in western China, flashed onto a wall-size screen, with colorful icons marking police stations, checkpoints and the locations of recent security incidents. At the click of a mouse, a technician explained, the police can pull up live video from any surveillance camera or take a closer look at anyone passing through one of the thousands of checkpoints in the city. To demonstrate, she showed how the system could retrieve the photo, home address and official identification number of a woman who had been stopped at a checkpoint on a major highway. The system sifted through billions of records, then displayed details of her education, family ties, links to an earlier case and recent visits to a hotel and an internet cafe. The simulation, presented at an industry fair in China, offered a rare look at a system that now peers into nearly every corner of Xinjiang, the troubled region where Kashgar is located. This is the vision of high-tech surveillance — precise, all-seeing, infallible — that China’s leaders are investing billions of dollars in every year, [making Xinjiang an incubator for increasingly intrusive policing systems](#) that could spread across the country and beyond. It is also a vision that some of President Trump’s aides have begun citing in a push for tougher action against Chinese companies in the intensifying trade war. Beyond concerns about market barriers, theft and national security, they argue that China is using technology to strengthen authoritarianism at home and abroad — and that the United States must stop it.

How China Turned a City Into a Prison

Children are interrogated. Neighbors become informants. Mosques are monitored. Cameras are everywhere.

Developed and sold by the China Electronics Technology Corporation, a state-run defense manufacturer, the system in Kashgar is on the cutting edge of what has become a flourishing new market for **technology that the government can use to monitor and subdue millions of Uighurs and members of other (((Muslim ethnic groups in Xinjiang)))**. Treating a city like a battlefield, the platform was designed to “apply the ideas of military cyber systems to civilian public security,” [Wang Pengda](#), a C.E.T.C. engineer, said in an official blog post. “Looking back, it truly was an idea ahead of its time.”



INTRODUCTION: Vector A: Beijing to Kashgar is 2500 miles at 10° North of west. Vector B: Kashgar to Myanmar is 1700 miles 37° East of south.

QUESTIONS: (a) Find X & Y components of vector displacement A?, (b) Find X & Y components of vector B?, (c) Find resultant displacement ($R = A + B$). Find both magnitude and direction. Show all calculations clearly. **ENGINEERING PHYSICS STUDENTS:** (d) Find dot product of $A \cdot B$?, (e) Using dot product find angle between vector A & vector B? **VERY IMPORTANT: SHOW ALL CALCULATIONS NEATLY.**

ANSWERS: (a) $A_x = -2462$ mi., $A_y = 434.12$ mi.
(b) $B_x = 1023$ mi., $B_y = -1357.7$ mi.,
(c) $R = \sim 1710$ mi. @ 57.3° West of south
(d) $A \cdot B = -3,108,031$ mi.², (e) $\sim 138^\circ$