



How Dr. Gladys West Made GPS Possible

By Swapna Krishna

The STEM fields are full of significant innovators who sadly never got the recognition they deserve. These people, many of whom are under-recognized female scientists, were pioneers in their fields. They achieved great things but didn't receive due credit because they were women of color (and often specifically Black women). In the 1950s and 60s, many Black women worked as engineers and "human computers," enabling the dawn of the space age and the era of modern computing.

Dr. Gladys West is one of STEM's hidden trailblazers. She helped develop technology that contributed to the creation of the Global Positioning System, or GPS, which revolutionized modern society. Her contributions have been hidden for too long. We're excited to discuss both Dr. Gladys West and the ins and outs of how GPS works.

How Does GPS Work?

When we're going about our daily lives, we use GPS constantly but don't really think about

what it is. How does GPS work? The United States' GPS relies on a constellation of thirty-one satellites in Earth orbit (other countries have their own GPS systems), according to the FAA. They work in concert with ground stations that pinpoint the precise position of these satellites at any given time. Receivers are what we utilize (our phones, car infotainment systems, etc.) to access the GPS network.

Receivers are able to listen for signals from this satellite constellation. After communicating with a minimum of four separate satellites, they can pinpoint a user's location to within seven meters, with about ninety-five percent accuracy.

Dr. West's Background

Born in 1930 in rural Virginia, Dr. Gladys West was the daughter of Black sharecroppers and worked the fields as a child. She knew education was her way to a different life, so through hard work, she excelled and received a scholarship to college. She earned an undergraduate degree in mathematics and continued on to pursue a master's degree.



In 1956, she began her career at the United States Naval Weapons Laboratory. Her role was to collect and process data from satellites, which she used to help pinpoint their exact locations in space. This experience as a "human computer" helped

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2023

SBA and SOS Monthly Webinar
 Thursday, March 2, 2023, 9:00 am–11:00 am
 Online
 Main Sponsor(s): US Small Business Administration, New Hampshire Secretary of State Corporation Division
 Contact: Miguel Moralez, 603-225-1601, miguel.moralez@sba.gov
 Fee: Free; registration required
 Starting a new business? Looking for capital and finance options? Looking for general advice on starting or maintaining your business? Hear from representatives from the local SBA office and the New Hampshire Secretary of State Corporation Division. This workshop (currently held online during the pandemic) is offered on the first Thursday of every month. To join this free webinar, copy and paste the link below into your browser, then register for tickets for the date of your choice to receive the access code. <https://www.eventbrite.com/e/secretary-of-state-quickstart-and-small-business-administration-programs-tickets-262004180557>

Selling to the Federal Government Webinar
 Thursday, March 23, 2023, 1:00 pm–4:00 pm
 Online
 Main Sponsor(s): US Small Business Administration
 Contact: George Tapia, 610-382-3086, george.tapia@sba.gov
 Fee: Free; registration required
 Did you know that the federal government is the largest purchaser of goods and services in the world? Interested in learning how your business can market your services or goods to the federal government? Register on line at <https://www.eventbrite.com/e/how-to-sell-to-the-federal-government-tickets-21790713611> SBA helps to ensure small businesses get fair opportunities to share federal government prime contracts. Topics will include: How to Register, Small Business Certifications, Finding Opportunities, Marketing Your Firm, Federal Supply Schedules, Getting Paid, Tips to Prepare Your Offer, How to Seek Additional Assistance. All training sessions are held via Microsoft Teams Meeting. Participants must ensure Microsoft Teams is functioning.

Getting Registered into the System for Awards Management (SAM.gov) Webinar
 Wednesday, March 8, 2023, 1:00 pm–2:00 pm
 Online
 Main Sponsor(s): US Small Business Administration
 Contact: SBA Los Angeles District Office, 213-634-3855, LADO@sba.gov
 Fee: Free; registration required

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