Riley Jr. Gilbert N Form 3 September 23, 2009

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

OMB APPROVAL

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INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF

SECURITIES

30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting 2. Date of Event Requiring 3. Issuer Name and Ticker or Trading Symbol Person * Statement A123 SYSTEMS, INC. [AONE] Riley Jr. Gilbert N (Month/Day/Year) 09/23/2009 (Last) (First) (Middle) 4. Relationship of Reporting 5. If Amendment, Date Original Person(s) to Issuer Filed(Month/Day/Year) C/O A123 SYSTEMS, (Check all applicable) INC., Â 321 ARSENAL STREET (Street) 6. Individual or Joint/Group 10% Owner _X_ Director _X__ Officer Other Filing(Check Applicable Line) (give title below) (specify below) _X_ Form filed by One Reporting CTO and VP of Res. and Dev. Person WATERTOWN, MAÂ 02472 Form filed by More than One Reporting Person (City) (State) (Zip) Table I - Non-Derivative Securities Beneficially Owned 4. Nature of Indirect Beneficial 1. Title of Security 2. Amount of Securities Beneficially Owned Ownership Ownership (Instr. 4) (Instr. 4) Form: (Instr. 5) Direct (D) or Indirect (I) (Instr. 5) Â Common Stock D 556,152 Common Stock 803,705 I By wife Reminder: Report on a separate line for each class of securities beneficially SEC 1473 (7-02) owned directly or indirectly. Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative | 2. Date Exercisable and | 3. Title and Amount of | 4. | 5. | 6. Nature of Indirect |
|------------------------|-------------------------|------------------------|-------------|------------|-----------------------|
| Security | Expiration Date | Securities Underlying | Conversion | Ownership | Beneficial |
| (Instr. 4) | (Month/Day/Year) | Derivative Security | or Exercise | Form of | Ownership |
| | | (Instr. 4) | Price of | Derivative | (Instr. 5) |

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| | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | Derivative Security | Security: Direct (D) or Indirect (I) (Instr. 5) | |
|-----------------------------|------------------|--------------------|-----------------|----------------------------------|------------------------|---|---|
| Stock Option (Right to Buy) | 04/01/2006(1) | 08/25/2015 | Common Stock | 229,850 | \$ 0.21 | D | Â |
| Stock Option (Right to Buy) | 01/01/2009(1) | 09/17/2017 | Common Stock | 225,000 | \$ 5.49 | D | Â |
| Stock Option (Right to Buy) | 06/25/2010(1) | 06/25/2019 | Common Stock | 75,000 | \$ 9.71 | D | Â |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | | |
|--|---------------|-----------|--------------------------------------|-------|--|
| | Director | 10% Owner | Officer | Other | |
| Riley Jr. Gilbert N C/O A123 SYSTEMS, INC. 321 ARSENAL STREET WATERTOWN, MA 02472 | ÂX | Â | CTO and VP of Res. and Dev. | Â | |

Signatures

/s/ Eric J. Pyenson, attorney-in-fact 09/23/2009

**Signature of Reporting Person

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 5(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) 25% of the shares subject to the option vest on this date, and 6.25% of the shares subject to the option vest quarterly thereafter until the option is fully vested.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *See* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.

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