



(12) **United States Patent**  
**Agiwal et al.**

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(54) **APPARATUS AND METHOD FOR SIGNALING SYSTEM INFORMATION**

(56) **References Cited**

(71) Applicant: **Samsung Electronics Co., Ltd.**,  
Suwon-si, Gyeonggi-do (KR)

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(73) Assignee: **Samsung Electronics Co., Ltd.**,  
Suwon-si (KR)

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 94 days.

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*Primary Examiner* — Sithu Ko

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(74) *Attorney, Agent, or Firm* — Jefferson IP Law, LLP

(65) **Prior Publication Data**

(57) **ABSTRACT**

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The present disclosure relates to a communication method and system for converging a 5<sup>th</sup>-generation (5G) communication system for supporting higher data rates beyond a 4<sup>th</sup>-generation (4G) system with a technology for internet of things (IoT). The present disclosure may be applied to intelligent services based on the 5G communication technology and the IoT-related technology, such as smart home, smart building, smart city, smart car, connected car, health care, digital education, smart retail, security and safety services. A method for receiving system information (SI) by a user equipment (UE) in a wireless communication system is provided. The method includes receiving, from a base station (BS), first type SI associated with SI which is essential for communication with the BS, transmitting, to the BS, a physical random access channel (PRACH) preamble based on the first type SI, receiving, from the BS, a random access response (RAR) message, and receiving, from the BS, second type SI associated with at least one SI which the UE needs.

**Related U.S. Application Data**

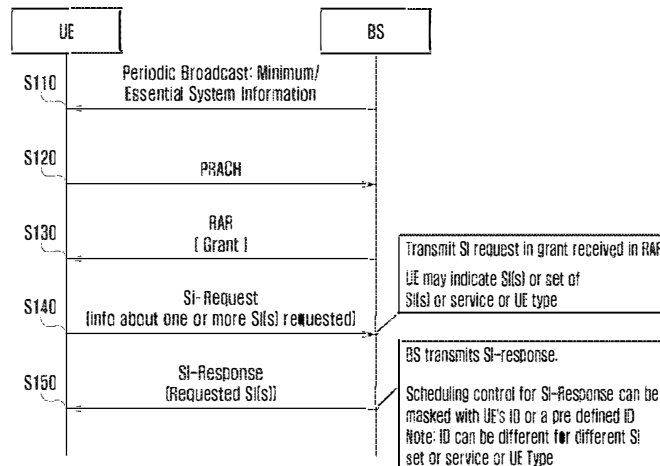
(60) Provisional application No. 62/301,016, filed on Feb. 29, 2016, provisional application No. 62/334,706, filed on May 11, 2016.

(51) **Int. Cl.**  
**H04L 12/18** (2006.01)  
**H04W 74/08** (2009.01)  
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(52) **U.S. Cl.**  
CPC ..... **H04W 74/0833** (2013.01); **H04W 4/06** (2013.01); **H04W 48/12** (2013.01);  
(Continued)

(58) **Field of Classification Search**  
None  
See application file for complete search history.

**14 Claims, 20 Drawing Sheets**



- (51) **Int. Cl.**  
*H04W 4/06* (2009.01)  
*H04W 72/04* (2009.01)  
*H04W 72/14* (2009.01)  
*H04W 48/12* (2009.01)  
*H04W 74/00* (2009.01)

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- (52) **U.S. Cl.**  
 CPC ..... *H04W 72/0413* (2013.01); *H04W 72/14*  
 (2013.01); *H04W 74/006* (2013.01)

NEC: Further clarification of on-demand S-BCH 3GPP Draft; R2-063090; LTE BCH-on-Demand Clarification, 3rd Generation Partnership Project (3GPP), Mobile Competence Centre; 650, Route Des Lucioles; F-06921 Sophiaantipolis Cedex; France, vol. Ran WG2, No. Riga, Latvia; Nov. 1, 2006, Nov. 1, 2006, XP050132601. NEC: "LTE BCH-on-demand", 3GPP Draft; R2-062930; LTE BCH on Demand, 3rd Generation Partnership Project (3GPP), Mobile Competence Centre ; 650, Route Des Lucioles ; F-06921 Sophia-Antipolis Cedex; France, vol. Ran WG2, No. Seoul, Korea; Oct. 5, 2006, Oct. 5, 2006, XP050132448. Nortel: "System Information broadcast gating", 3GPP; Draft; R2-063137, 3rd Generation Partnership Project (3GPP), Mobilecompetence Centre ; 650, Route; Deslucioles ; F-06921 Sophia-Antipolis Cedex; France, vol. Ran WG2, No. Riga, Latvia; Nov. 1, 2006, Nov. 1, 2006, XP050132644.

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FIG. 1

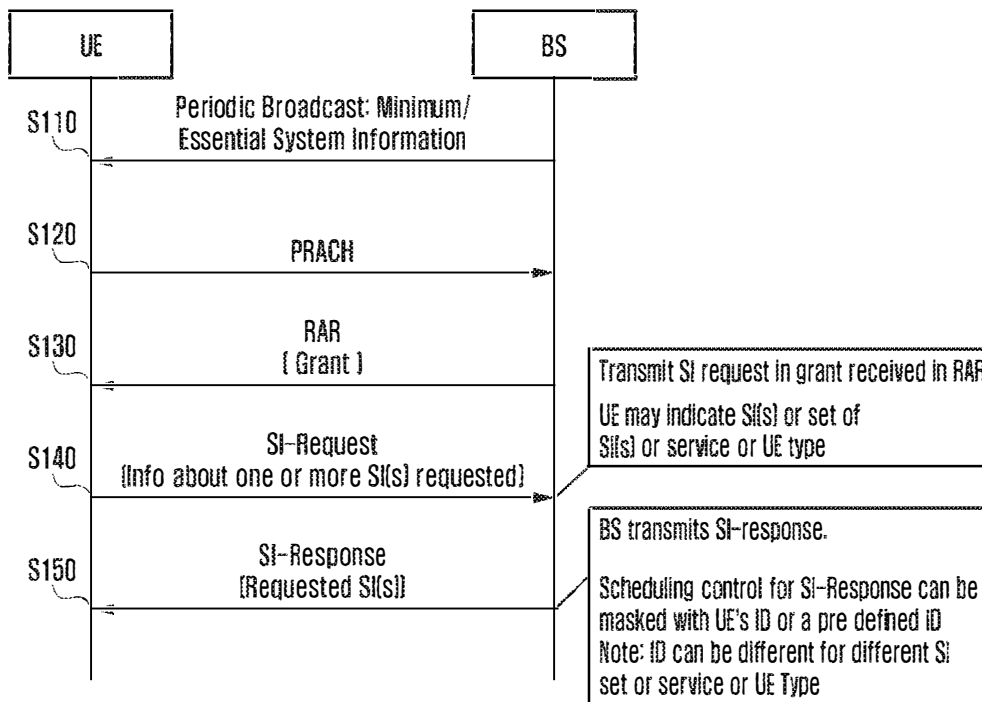


FIG. 2

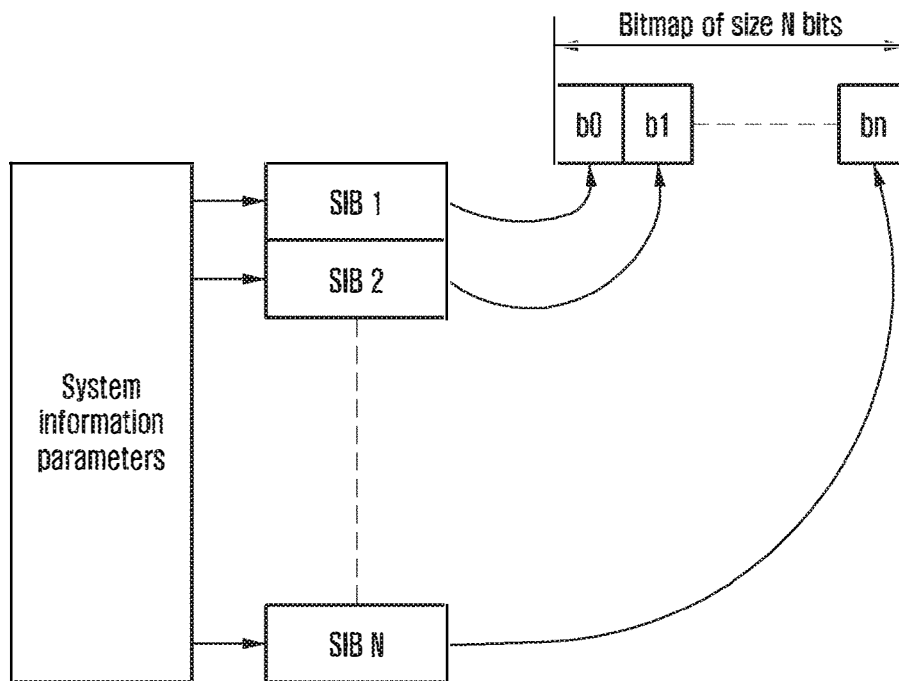
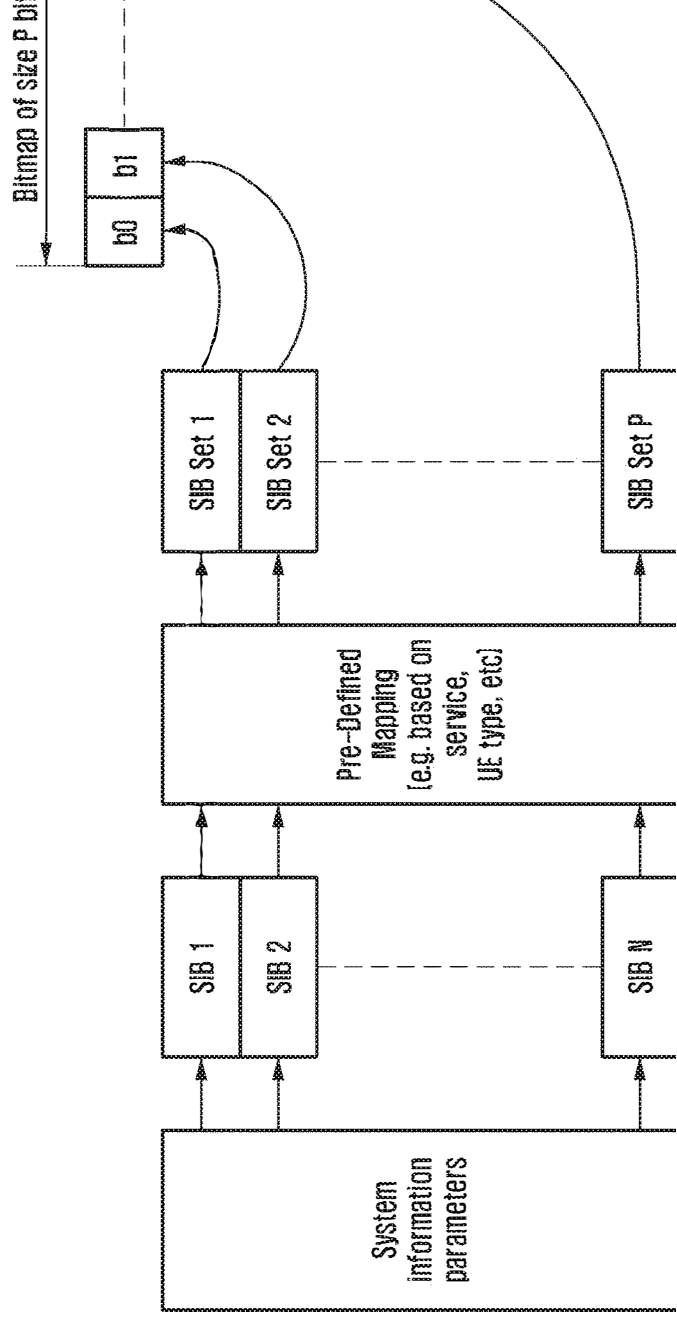


FIG. 3



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